ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY.

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PUBLISHED BY THE

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M.DCCCCVI.

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[a] The Society is indebted to the publishers of Evans's *Ancient Bronze Implements* for the blocks of these illustrations.

[b] The Society is indebted to the Trustees of the British Museum for the use of these illustrations.

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[a] The Society is indebted to the Trustees of the British Museum for the use of these illustrations.

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MISCELLANEOUS TRACTS,

&c.

I.—*A Second Silver Treasure from Cyprus.*

By Ormonde M. Dalton, *Esq.*, *M.A.*, *F.S.A.*

Read 30th March, 1905.

In the early summer of 1902 a large and important discovery of Byzantine silver plate and gold jewellery was made at Karavás, a village close to the ancient Lapithos, about six miles west of Kyrenia on the north coast of Cyprus. The spot was not far from the monastery of Acheiropoietos, close to which another find of silver of a similar period had been made a few years previously, the objects being acquired by the British Museum and described in *Archaeologia*.[a]

The history of the second find, with part of which we are here concerned, is now sufficiently well known, and need only be summarised here. In order to evade the Cypriote law regulating the disposal of excavated antiquities, according to which all objects must be notified and one-third ceded to the Government, the peasants who made the discovery took the common course of concealing their treasure and entering into negotiations with private purchasers, in the present case certain dealers in works of art carrying on business in Paris. But news about buried treasure invariably leaks out, and before long the Government received information of what was going on. Through the energetic action of Mr. Ernest McDonald, then Acting Commissioner of Kyrenia, the houses of the suspects were suddenly surrounded and searched by the police, the result being the seizure of the objects described in the present paper. But the larger and more important part of the find could not be found. It had been placed somewhere beyond the reach of the official arm, if it had not already been smuggled out of the island, and ultimately arrived without let or hindrance at its destination in Paris. There it has been seen by the curators of several continental museums and by numerous private collectors, but so formidable is the price demanded (a sum running into five figures), that as late as the winter of 1905 it

[a] Vol. lvii. 159 ff.

was still without a purchaser. Although the Government of Cyprus had communicated the facts to the home authorities, it appeared that the dealer was in a position of complete security. It was, of course, perfectly well known that a third of the objects in his possession were claimed by the Cyprus Government; but as it could not be legally proved that he knew they were the result of excavations, and as he was neither a British nor a French subject, the efforts of the Colonial Office and the British Embassy in Paris were unavailing. Meanwhile the peasant discoverers and their friends had brought an action against the Government of Cyprus for illegal detention of the part of the treasure seized by Mr. McDonald, declaring that the objects had not been excavated at all, but were family heirlooms which had been in their possession for many years! They were successful; but the Government appealed, and finally obtained a reversal of the judgment. The seized treasure thus remains in the island, and will no doubt find a home in the Nicosia Museum. Before considering it in detail I will briefly enumerate the principal objects removed to Paris. These were:

Three silver dishes, each rather more than 10 inches in diameter, ornamented with figure-subjects in relief representing scenes from the life of David (his anointing, his introduction into Saul's presence, and his equipment in the king's armour); they belong to the same series as Plate II., from which a clear idea of their style and character may be obtained.

Two smaller dishes, each 5·4 inches in diameter, also with figures in relief. One represents David killing the lion, the other David and a warrior. These two dishes are uniform with those of Fig. 4.

A very large dish, with two scenes showing the combat of David and Goliath, now perhaps with the Paris part of the treasure, but up to the summer of 1905 concealed in Cyprus pending a favourable opportunity for removal.

(All these dishes had on the back Byzantine stamps or control-marks as described below, p. 13.)

A series of sixteen gold medallions, four of very large size, with effigies and inscriptions of Maurice Tiberius (12), Justin and Justinian (3), and Theodosius (1). These medallions were furnished with loops at the sides, and had evidently been linked together to form an ornamental collar or belt.

A necklace of cylindrical plasma beads alternating with pearls. The ends terminate in two openwork gold discs with birds and scrolls, fastening by a hook and loop.

A gold necklace of flat links of open scroll-work, having in the front ten long cylindrical openwork gold beads and a gold pectoral cross chased with conventional

Fig. 1.

Fig. 2.

BYZANTINE SILVER DISHES IN CYPRUS. (¼ linear.)

Published by the Society of Antiquaries of London, 1906.

BYZANTINE SILVER DISH IN CYPRUS. THE MARRIAGE OF DAVID.

(Diameter of original, 10⅞ inches.)

Published by the Society of Antiquaries of London, 1906.

designs. On either side of this are ten gold pendants, eight in the form of amphoræ of different forms, two flat and pear-shaped.

A gold necklace of thin flat links in openwork scroll designs, from the middle of which hangs a chased gold pectoral cross depending from a small medallion chased with the figure of a bird. On either side of the cross is a pair of pear-shaped ornaments with openwork foliate designs, and an openwork disc or medallion, the design of which represents an amphora. At the back is an openwork disc with a floral ornament.

A pair of openwork gold bracelets, the front opening on a hinge. The designs are vine-scrolls with bunches of grapes.

A pair of gold earrings. Each has a sapphire drop hanging in the middle of a loop of gold wire; round this is a border of pearls alternating with small gold loops through which the threading wire is passed.

The share of the treasure falling to the Cyprus Government, and now to be described, also contains five silver dishes; but as two are devoid of figure subjects, the series is somewhat inferior in archæological interest. The jewellery is comparatively insignificant compared with that which has just been enumerated.

1. The largest of the silver dishes (Plate I. fig. 1) is $17\frac{1}{2}$ inches (44 centimetres) in diameter, and stands upon a low foot. The rim is moulded, and in the centre is a cruciform monogram within a band ornamented with a floral scroll, both incised and filled with niello. The floral scroll is between two gilded bands, beyond which are enclosing circles turned and chased in low relief; on the bottom are the impressions of five stamps (see fig. 8 and p. 13), with monograms, names, and busts, closely resembling those upon the silver in the British Museum.[a] These stamps, together with those of the same character on the four following dishes, are described in detail below (p. 14).

2. The second dish (Plate I. fig. 2) is of almost equal diameter and in the same style. Instead of a monogram it has in the centre a cross, and the surrounding scroll is of different design.[b] The stamps on the back are similar in character to those of No. 1, but are not individually identical.

3. This dish (Plate II.) is $10\frac{5}{8}$ inches (27 centimetres) in diameter, and iconographically the most important, the scene upon it evidently representing the marriage of David. Before an architectural background, identical with that seen

[a] See *Archaeologia*, lvii. 166, and *Catalogue of Early Christian and Byzantine Antiquities in the British Museum*, p. 86.

[b] It may be compared with the dish shown in *Archaeologia*, lvii. plate xvi. fig. 2, and with similar dishes in the Stroganoff Collection (see the above-mentioned catalogue, p. 86, No. 397.)

in the other dishes of the same set in Paris, stands a bearded figure with nimbus, wearing a tunic with long sleeves embroidered on the shoulder and wrist, a chlamys with embroidered *tablion* fastened by a *fibula* with pendants, and embroidered shoes. He holds his right hand over his breast and stands upon a low footstool. To his right and left, joining their right hands across his body, stand the bridegroom and the bride, both of whom have the nimbus. The former, who is beardless and with curly hair, is dressed in the same manner as the central figure; the bride, who wears a fillet in her hair, has a long girded tunic with bands of embroidery round the bottom and the wrists, embroidered stripes on the breast, and two rosettes (*calliculæ*, *orbiculi*) on the lower part in front. Her long mantle is diapered with rosettes and dots in groups of three, and is fastened over the bosom with a circular brooch. In her left hand she either holds a part of her garment, or carries an object the nature of which it is difficult to determine. The central group is flanked by two beardless youths playing pipes. Each wears a short mantle with embroidered border fastened on the right shoulder, and a girded tunic with short sleeves embroidered borders and *orbiculi*. But while the figure on the right has closely-fitting trousers, diapered with ornament, and low boots, the legs of the other are bare, and he has high boots laced up the front.

In the exergue are a basket filled with fruit and two money-bags tied at the necks.

This scene represents the Christian equivalent for the ceremonial *dextrarum junctio*, which in the ancient Roman marriage preceded the nuptial sacrifice. It is the portion of the marriage-service most popular in Roman art,[a] where the central figure is usually either *Juno Pronuba*, or a married woman playing her part. But at a fairly early date, perhaps in the Antonine period, a male figure, the father or guardian of bride or groom, sometimes takes the place of the *pronuba*, and this substitution is found on a coin (fig. 1) of Theodosius II. (A.D. 437), where the Emperor, standing between Valentinian III. and Eudoxia, lays his hands upon their shoulders.[b] Soon after this a coin of Marcian and

Fig. 1. Coin of Theodosius II. (After Macdonald).

[a] On the Roman marriage in art see Rossbach, *Römische Hochzeits und Ehedenkmäler* (Leipsic, 1871), and Marquardt and Mommsen, *Handbuch der römischen Alterthümer*, vii. 41 f. On representations of Early Christian Marriages see O. Pelka, *Altchristliche Ehedenkmäler* (Strasburg, 1901).

[b] *Zeitschrift für Numismatik*, xxi. pl. i. fig. 1; G. Macdonald, *Coin Types* (Glasgow, 1905), 234, and pl. ix. fig. 7.

Pulcheria[a] (A.D. 450-457) in the Glasgow Museum shows us Our Lord in the central position, as we see him upon Byzantine marriage rings[b] and upon a necklace figured by Garrucci.[c] The central figure on the dish represents Saul, who wears royal costume and has the nimbus like other kings and prominent persons in Early Christian and Byzantine art. In another example of the marriage of David upon the ivory casket in the Kircherian Museum at Rome, an object by some assigned to the close of the ninth century,[d] by others to a later period, Saul is also seen giving Michal to David, but there he stands to the left of the group, wearing the later Byzantine imperial costume: both as regards the costume and the grouping of the figures the scene upon the silver dish represents a far earlier period than that upon the casket. The marriage is apparently not included among the scenes from the life of David represented in the early Byzantine Psalters,[e] and it would appear not to have been regarded as an essential part of the cycle. The two flute-players would perhaps be more in place in a representation of the *deductio* of the bride, but there are other known examples of the presence of the *tibicen* at the sacrifice.[f] It may be noted that the bride does not wear the usual veil; the object in her left hand, if object it is, is not easy to determine, for it does not resemble the *volumen*, which, though commonly carried by the bridegroom, is sometimes seen in the bride's hands.[g]

The basket and bags in the exergue recur in a dish in the Paris part of the treasure representing the young David introduced into Saul's presence, and therefore have in all probability no particular connection with the ceremony; perhaps they are intended to convey the general idea of largesse or regal abundance, and so are in a certain measure appropriate to the scene. On the dish representing the equipment of David with Saul's armour, the objects in the base are a shield and bow, and are thus also generally suited to the subject above them, as are

[a] Macdonald, *as above*, pl ix. fig. 8; Pelka, 108.

[b] British Museum *Catalogue*, *as above*, Nos. 130 and 131.

[c] *Storia dell' arte Cristiana*, vi. pl. 479, fig. 3.

[d] G. Schlumberger, *Monuments et Mémoires publiés par l'Académie des Inscriptions et Belles-Lettres* (*Fondation Eugène Piot*), vol. vi. 1900; H. Graeven, Photographs of Early Christian and Mediæval ivory-carvings, 2nd Series, Italian collections, Nos. 57-61 (Rome, German Archæological Institute, 1900). The marriage scene is on Photo No. 61. See also *Byzantinische Zeitschrift*, x. (1901), 566.

[e] Enumerated by Kondakoff, *Transactions of the Moscow Archæological Society*, vii. 179. I owe this reference to M. Gabriel Millet.

[f] Pelka, *as above*, 143.

[g] As on the Projecta casket in the British Museum (*Catalogue*, pl. xiv.).

weapons in similar position on the votive shield of Valentinian[a] at Geneva, and that of Justinian found at Kertch, and now at St. Petersburg (see p. 23). In the Anointing (see fig. 3), the objects in the exergue, being of sacrificial import, may have been considered not incongruous with a sacramental scene.

Fig. 2. Silver votive shield of Theodosius at Madrid. (After Odobesco.)

The triple portico of the background, though of feeble design and without the pediment, recalls the architectural scheme on the votive shield of Theodosius[b] at Madrid (fig. 2), which itself has a prototype of a purer style in the Roman silver dish in the National Library at Paris, representing the return of Briseis to Achilles.[c] The Kyrenia dishes, however, are certainly of a considerably later period than the shield at Madrid, and more nearly related to the silver dish in the Stroganoff collection, representing Ajax and Ulysses disputing the possession of the arms of Achilles, a work which may be about two centuries later than the time of Theodosius.[d]

[a] A. Odobesco, *Le trésor de Pétrossa*, 154; convenient series of illustrations of other early silver dishes will be found in Odobesco, 148 ff, and A. Venturi, *Storia dell' arte italiana*, i. 493 ff.

[b] Very frequently published. From a photograph, by A. Venturi, *Storia dell' arte Italiana* i. 497 (Milan, 1901). From Drawings, by A. Delgado, *El gran disco di Theodosio* (Madrid, 1849); J. Arneth, *Die antiken Gold-und Silber-Monumente des K. K. Münz-und Antiken Cabinettes* (Vienna, 1850); *Beilage*, pl. iv.; J. Didron, *Annales archéologiques*, xxi. (1861), 309; Ch. Cahier, *Nouveaux Mélanges d'archéologie*, i. (Paris, 1874), pl. vii.; J. Strzygowski and E. Pokrovsky *Materials for Russian Archæology* (continuation of the *Compte rendu* of the Imperial Archæological Commission), No. 8 (St. Petersburg, 1892), pl. v.; A. Odobesco, *Le trésor de Pétrossa*, 158, fig. 72. See also E. Hübner, *Die antiken Bildwerke in Madrid* (Berlin, 1862), 213 ff.

[c] Obobesco, 121.

[d] *Ibid.* 149, fig. 63. The helmet on this dish is very like those of the Joshua rotulus and of the Paris portion of the Kyrenia treasure.

I am enabled to give a rough idea of one of the other dishes of the same series removed from Cyprus by fig. 3, drawn after a photographic reproduction on a pictorial postcard which has been on sale in the island. The scene there shown, the Anointing of David, was frequently represented in art. It is found for example on the doors of St. Ambrose at Milan (see p. 10), in the frescoes of Bawît (see p. 18), on the ivory casket at Rome (see p. 5), on the ivory book-cover of the Princess Melisenda in the British Museum,[a] in the Paris Psalter No. 139,[b] in the Pantocrator Psalter (No. 49) on Mount Athos (*Collection des Hautes Études*, Series C, No. 107), and the Psalter of Basil II. at Venice (Series C, No. 534), in the Vatican Bible of Queen Christina, which is allied to the group of Psalters represented by the Paris example, and in the Orations of Gregory of Nazianzus (Paris, No. 510). Upon the silver dish, the group preserves the symmetrical and monumental character apparent in the case of the other scenes in which several figures are represented. Instead of the whole family of Jesse as we see it on the doors of St. Ambrose and in the MSS., we have only three figures, presumably Jesse and two of his sons. In the exergue are an altar and two victims, a club, and a sword, objects distinctly un-Christian in character and clearly survivals from antique tradition.

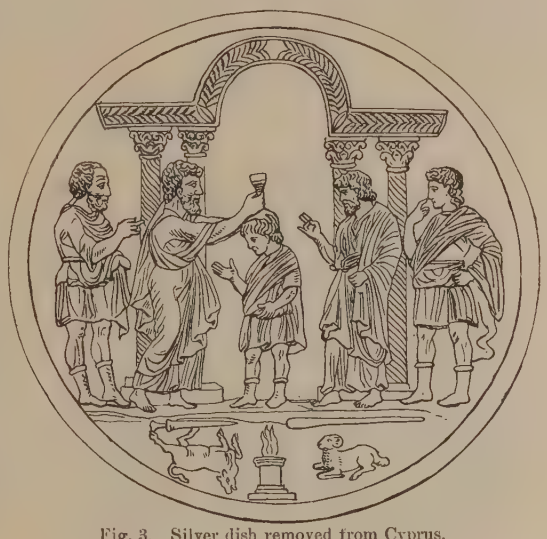


Fig. 3. Silver dish removed from Cyprus.

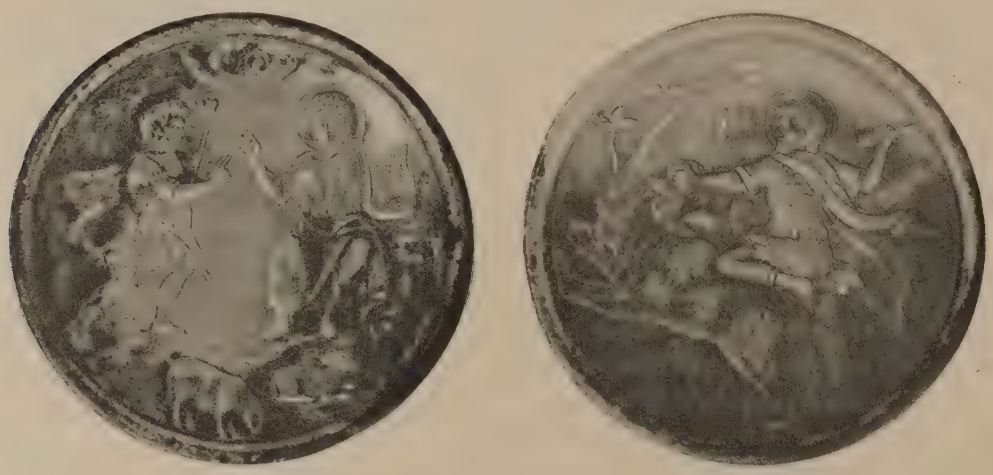
4. This and the following dish are of much smaller size, 5·5 inches (14·1 centimetres) in diameter. In the part of the treasure removed to Paris there are two more of these small dishes, both with episodes from the life of David.

[a] Ch. Cahier, *Nouveaux Mélanges d'archéologie*, ii. 1-14 ff.; H. Graeven, Photographs of Ivories, Series i. Nos. 51 and 52; Westwood, *Fictile Ivories*, 72; Du Sommerard, *Les arts au Moyen Age*, Album, 2nd Series, chap. v. pl. xxix.

[b] Individual miniatures from this famous Psalter of the "aristocratic group" (see below, p. 19) have been frequently reproduced, among others by Labarte, *Histoire des arts industriels*; Ch. Bayet, *L'art byzantin*, 159, 161, and 162; H. Bordier, *Description des ornements, etc. des MSS. grecs de la Bibliothèque Nationale*, 111; G. Millet in A. Michel's *Histoire de l'art depuis les premiers temps chrétiens*, 222-3.

The present scene (fig. 4*b*) is the slaying of the bear. David, in girded tunic, mantle, and boots, grasps the beast by the forelock, supporting his left knee upon its back; in his right hand he holds a short weapon which may be intended for a knife. To the left is a tree, and in the foreground were probably grass and plants as in the following number and the other dishes of the same small series, but this part is concealed by oxidation. The slaying of the bear is naturally found in Byzantine Psalters, for example the Psalter of Basil II. in the Library of St. Mark, Venice.[a] (Fig. 5.) The companion picture, which is apparently more common, is the slaying of the lion; it occurs upon one of the two small dishes in the Paris series, as upon the doors of St. Ambrose at Milan, to which reference is made below.

On the bottom are five impressions of stamps (see below, p. 16).



a *b*

Fig. 4. Two small silver dishes in Cyprus.

5. Small dish of the same dimensions (fig. 4*a*): The messenger from Samuel coming to David among his flocks.

To right David beardless and with the nimbus is seated upon a rock or hillock (?) wearing a long tunic with short sleeves; the borders of the garments are ornamented with bands of punched dots. In his left hand he holds a lyre, while his right is raised, the fingers being held in what became the Greek attitude of benediction; here the gesture is used in its earlier sense to signify that a con-

[a] Photograph No. 535, Series C, in the Collection of the *Hautes Études*, G. Millet, *La collection Chrétienne et Byzantine des Hautes Études*, 1903, p. 45. Reproduced by Labarte, *Histoire des arts industriels*, 2nd ed. ii. (1873), pl. xlix.

versation is in progress. From the left approaches a youth in tunic, mantle, and boots, as worn by the flute-player to the left in the wedding scene, though here we have also the nimbus, signifying that the person represented is more than a mere subordinate. In his left hand is a staff or wand, with a knob at the top, of a kind carried by celestial messengers in early Byzantine art, notably by the Angel of the Annunciation; the right hand is extended, and the fingers form the Latin gesture of benediction, which here too is merely used as a conventional means of representing discourse. In the foreground are two sheep, one recumbent, the other grazing.

Fig. 5. David slaying the bear. From a MS. at Venice. (After Labarte.)

In the illuminated Byzantine Psalters of the "aristocratic" group, with which the subjects upon these dishes have evident affinities (see below, p. 19), David, seated with his lyre among his flocks, is commonly accompanied by the allegorical personification of Melody. The most conspicuous example of this is to be found in the famous Psalter (Greek, No. 139) in the National Library at Paris, of which mention has already been made (see p. 7, note [b]). But in the British Museum Psalter of A.D. 1066 (Add. MS. 19352), which belongs to the more popular "theological" group, there are miniatures (on folio 190) representing David the Shepherd being summoned by an angel,[a] who has been despatched from heaven for the purpose. David is there five times represented, twice among his flocks, once on his way to be anointed, and twice in company with the prophet, who carries the horn of oil. The message is brought to him while he is in the field, where he is seen playing not the lyre but the flute, while the angel carries a wand, and has wings. This later representation of the scene interprets in a more direct manner the divine initiative suggested by the verse of the psalm: "He chose David also his servant, and took him from the sheep-

[a] J. J. Tikkanen, *Die Psalterillustration im Mittelalter*, i. 28. (Helsingfors, 1895.)

fold" (Ps. 78, v. 70); while the version upon our silver dish is more in accordance with the vague statement in the Book of Samuel: "and he sent and brought him in."[a] The youthful figure of the messenger, though it has the nimbus and the wand or staff, could not have been intended to represent an angel at the time when this silver treasure was made, for angels receive wings in Christian art as early as the fourth century.[b] We must rather suppose the messenger to be one of David's brothers sent to fetch him at the bidding of Samuel.

A very interesting parallel to the scene as here shown is found on the carved

Fig. 6. David receiving Samuel's message. From the carved wooden doors on the church of St. Ambrose at Milan. (After Goldschmidt.)

wooden doors of the church of St. Ambrose at Milan, now considered to date from Early Christian times.[c] Here David is seen amidst his flocks, while the lion and

[a] 1 Samuel xvi. 12. In the Septuagint the passage is: *καὶ ἀπέστειλε καὶ εἰσηγαγεν αὐτον.*

[b] On the doors of St. Ambrose at Milan, to which reference is made immediately below, the angel of victory is winged in the scene of the defeat of Goliath.

[c] A. Goldschmidt, *Die Kirchenthür des heiligen Ambrosius in Mailand.* Strasburg, 1902. Professor Goldschmidt believes the door to date from the close of the fourth century, and thinks that it was made in Italy to the special order of St. Ambrose. Professor Strzygowski (*Byzantinische Zeitschrift*, 1902, xi. 666), while accepting the early date, holds the work to be more probably of Syrian origin imported into Italy perhaps at the time of the Crusades. He argues that the removal of every head in the sculptured figures points to deliberate mutilation, and suggests that the doors must have at one time been in a country under Arab domination. But to this it has been replied that a monument so mutilated would not have been thought worth transporting to the West.

the bear, tamed and subdued, are symbolically placed beneath his feet. (Fig. 6.) As in the series of silver dishes, he wears a girded tunic, a short mantle knotted or twisted about the neck, and high boots. From the left there approaches a man in a long tunic and mantle, raising his hand as if in the act of delivering a message. There can be little doubt that here too the artist wished to depict the arrival of the message summoning the young shepherd to Samuel's presence. The substitution of an angel in the later version represented by the British Museum miniature would naturally result from the more theological character of the book compared with earlier Psalters, or perhaps rather from the general tendency of thought in a later age.[a]

Fig. 7. Jewellery, remaining in Cyprus.

The jewellery of the part of the treasure now in Cyprus is insignificant in comparison with that which was carried off to Paris. It comprised the following articles:

Four pairs of gold earrings like those shown in fig. 7, *a* and *b*, each consisting of a penannular wire with four pendent chains terminating in pearls, the type being well known from late Roman times and represented by numerous examples in museums.

A piece of gold chain having at one end a gold spatula and at the other a small loop (fig. 7 *c*). Perhaps the loop is intended to connect it with the coin of Justin II. and Tiberius II. (Constantinus) represented with it, and furnished with two similar loops on one side and one on the other. The hollow bar with three loops for attachment (fig. 7 *d*) may also have formed part of this chain.

In addition to the coin already mentioned there are four other gold coins, two of Constans II. (A.D. 642-668), one of Maurice Tiberius (A.D. 582-602), and one (probably) of Constantine IV. (Pogonatus) (A.D. 668-685). The coins and medals in the exported part of the treasure were of Maurice Tiberius, Justin and Justinian,

[a] On the substitution of the angel, see J. J. Tikkanen, *as above*, i. 116.

and Theodosius II. (A.D. 408-450). The numismatic evidence thus covers a period of more than two hundred and fifty years, and seems to show that the treasure must have been deposited toward the close of the seventh century, a time when the Byzantine Emperors and the Saracens were disputing the possession of Cyprus, and the island was taken and retaken by both sides.

The Kyrenia treasure has considerably increased our knowledge of Byzantine jewellery, examples of which have hitherto been comparatively rare. The specimens in the British Museum have been published in the *Catalogue* of 1901.[a] A treasure from Mersina (in Cilicia) in the Hermitage, St. Petersburg, has been illustrated in a work of Professor N. Kondakoff,[b] and the objects composing it bear in several details a close resemblance to ornaments in the Paris part of the Kyrenia treasure, especially in the use of openwork designs, and in the pear-shaped form of certain pendants, which seem to suggest an oriental influence. They also have affinities with another small find of gold jewels, also from Kyrenia, now at Nicosia and described in the catalogue of the Cyprus Museum.[c]

There is a family likeness between gold ornaments of Byzantine origin or inspiration, and dating from the sixth-seventh centuries, found in various European countries, a very ubiquitous type being the openwork earrings with confronted birds,[d] which have occurred as far apart as Egypt and Hungary, one example from Cyprus being formerly in the possession of Cesnola.[e] The similarity suggests a common place of origin for all this work, and Mr. Smirnoff has pointed out that both Egypt and Cilicia may be provisionally regarded as likely centres.[f] Cyprus, lying as it did between Egypt and Asia Minor, would be equally open to influences from both countries. Dr. Arthur Evans, in connection with a gold collar found at Aesica, had already noted the wide influence exercised by Græco-Egyptian jewellery through Europe.[g]

[a] *Catalogue of Early Christian and Byzantine Antiquities*, section ii.

[b] *Russian Treasures*, i. 187-192, and pls. xviii. and xix.

[c] *The Reliquary and Illustrated Archæologist*, 1898, pp. 109-112; *Catalogue of the Cyprus Museum*, 1899, p. 140.

[d] *Catalogue of Early Christian and Byzantine Antiquities*, No. 276, pl. v.

[e] Cesnola, *Cyprus*, pl. vi. For the Hungarian examples see J. Hampel, *Alterthümer des frühen Mittelalters in Ungarn*, i. 371.

[f] *Journal of the Imperial Russian Archæological Society*, vol. xii.: *Transactions of the Classical, Byzantine, and W. European Section*, book v. 506-510.

[g] *Archaeologia*, lv. 180.

The earrings of the present treasure are very like examples found in Egypt, and it may be added that the portion taken to Paris contained a pair of bracelets of the same shape as the two in the British Museum[a] and in the Château de Goluchow[b] respectively; the British Museum example, formerly in the possession of Count Tyszkiewicz, is said to have been obtained in Cairo.

The stamps upon the bottom of these silver vessels are almost certainly control-marks applied by order of the official or officials responsible for maintaining the purity of the precious metals used in the industrial arts.[c] Exactly who these persons were is not known; it may be that, as in the case of the control of money standards,[d] they were eparchs, and that a clue may be furnished by some of the names which occasionally occur in the impressions. That the stamps relate to the quality of the metal, and not to the ownership of the objects, is shown by the fact that in two known pieces of Byzantine silver the completion of the work has damaged or distorted the impressions, and is therefore subsequent to their application. One is the censer in the British Museum,[e] the other a reliquary from the Chersonese with stamps on the inside of the cover.[f]

It would appear from a passage in a Byzantine text of the iconoclastic period published by Combefis,[g] to which Mr. Smirnoff draws attention, that silver of the finest quality was marked with five impressions; and in fact upon most of the examples of Early Byzantine silver preserved to us we find this number. It is never exceeded, though where only a smaller number of stamps were available, the total was made up by using one or other of them more than once.

These impressions of stamps are of considerable interest on account of the

[a] Catalogue, No. 279.

[b] W. Fröhner, *Le Château de Goluchow; L'orfèvrerie*, pl. xvii. p. 74. Paris, 1897. The bracelet was also formerly in the Tyszkiewicz collection.

[c] The whole question is discussed by Mr. Smirnoff, of the Museum of the Hermitage at St. Petersburg, in the *Journal of the Imperial Russian Archæological Society*, vol. xii; *Transactions of the Section for Classical, Byzantine, and West-European Archæology*, book v. pp. 506-510.

[d] As illustrated upon the glass money-weights. *Catalogue of Early Christian and Byzantine Antiquities*, Nos. 660-685.

[e] *Archaeologia*, lvii. pl. xvii.

[f] Smirnoff, *as above*, 507.

[g] *Græcolatinæ Patrum Bibliothecæ Novum Auctarium* (Paris, 1648), i. 644. The passage relates a miraculous transformation of tin into "ἄργυρον πρώτιστον τον καλούμενον πενταφράγιστον."

names and monograms which they contain. On three out of the five silver plates (Nos. 1, 2, and 4) five impressions are clearly visible; on the remaining two only four appear distinctly. These twenty-two impressions have been produced by twelve stamps, some of which have been used again. They are of six forms: (1) cruciform, (2) rectangular, (3) rectangular at the base and arched at the top, (4) circular, (5) oval, and (6) hexagonal. The cruciform and rectangular forms all have a cruciform monogram in the middle, and round the sides or extremities the letters of a name; the arched form has in addition a bust above the monogram; the hexagonal form has a bust and monogram with possibly a surrounding inscription; while the oval and circular types each have a bust and name without a monogram.

Fig. 8. Impressions of stamps on silver dish No. 1. (Plate I.)

The individual impressions are seldom perfect, and to decipher the characters it is necessary to collate the examples upon different objects, a process which has been rendered more complete and satisfactory by the fact that some also occur on the silver dishes taken to Paris, so that ten dishes in all are available as material for comparison. Of the impressions on the Cyprus dishes, I possess in addition to notes, rubbings and wax impressions, though these still leave me in doubt as to one or two letters; of the Paris dishes I have notes only. The general character of the stamps are identical with those on the Lampsacus and Kyrenia treasures in the British Museum, and on silver vessels in St. Petersburg, Vienna, and in the Stroganoff collection, all of which have been published. I therefore here illustrate in only a single case a drawing of the stamps as they actually appear (fig. 8); the rest are described and accompanied by monograms which they contain, presented in a schematized form.

I. *Cruciform Type.*

(*a*) Monogram: (*Θεοδώρου*?).
Name: +KOCM(AC).

Fig. 9.

(*b*) Monogram: (Α*θανασίου* ?).
Name: CI(CI)NNIC (Sisinnios). See Fig. 8*a*.
(This reading begins on the lower arm of the cross.)

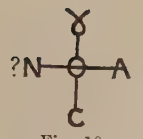


Fig. 10.

(*c*) Monogram: (?)
Name: ———OC.

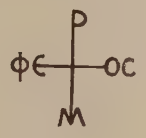


Fig. 11.

(*d*) Monogram: (Β*ασιλίου* ?).
Name: (CI)CIN(NIC) (Sisinnios).

Fig. 12.

II. *Rectangular Type.*

(*e*) Monogram: (Η*ρακλίου* ?).
Name: +KOMITAC (Komitas).

Fig. 13.

(*f*) Monogram: Φ*ωκα* (Phocas).
Name: +ΘEOΔωPOC.

Fig. 14.

III. *Arched Type.*

(*g*) Monogram, same as in (*a*).
Name: +CXOΛACTIKIC (on one example apparently CXOΛACTIC), Scholastikos?

(*h*) Monogram: (Ι*ωάννου* ? or Α*ντωνίου* ? Cf. monogram on silver dish, Plate I.)
Name: +Iω(ANNHC). (Fig. 8 *d*.)

Fig. 15.

(*i*) Monogram, same as in (*d*).
Name: *Scholastikos*, as in (*g*).

IV. *Oval Type.*

(*k*) Bust. An emperor (?), full face, with diadem and chlamys fastened on the right shoulder, above which rises the "tail" of a fibula or end of the garment.

Name: + A I " /// EPIC. (Fig. 8 *c*.)

V. *Circular Type.*

(*l*) Bust. An emperor, beardless, wearing a chlamys. Fibula with three pendants on the right shoulder. No nimbus.

Name: + ΘEOXAPICTOC.

VI. *Hexagonal Type.*

(*m*) Bust with nimbus (details not clear).

Monogram: as in (*f*) (Phocas). (Fig. 8 *b*.)

As to the distribution of the stamps among the five dishes, we find that:

Dish No. 1 has *b*, *f*, *h*, *k*, and *m*, all the impressions being different.
„ „ 2 „ *d* (twice), *i*, *e* (twice?).
„ „ 3 „ *c*, *e*, *g*, *l*.
„ „ 4 „ *a* (twice), *g* (twice) (part of another stamp indeterminate).
„ „ 5 „ *a*, *b*, *e*, *g*.

On the Paris part of the treasure, so far as I am aware, *b c d f h i k* and *m* are not found, the stamps there represented being *a e g* and *l* only.

Of the names given in full, Theocharistos, Kosmas, Theodoros, John, Sisinnios, Komitas, and Scholastikos may perhaps be regarded as certain. But it is to be feared that they furnish no useful historical evidence. Theocharistos is found in inscriptions,[a] the next four names are of too frequent occurrence to furnish a definite clue, though it may be noted that John and Sisinnius are found on the earlier Kyrenia treasure in the British Museum.[b] A Komitas, according to Pape-Benseler, is mentioned by Menander Protector as an ambassador to the Emperor Justin. A Scholastikos was a Comes in A.D. 422; another was a general of Justinian. The name also occurs in stamps impressed upon silver dishes found

[a] C. I. G. IV. 8644, 10; 9374. The first inscription is possibly as early as Justinian.

[b] See the catalogue previously referred to, where several references to Byzantine stamps will be found.

in Perm, and is probable in the case of a stamp on a silver vessel from Bukowina, now in Vienna. It is further found in an inscription.[a]

Among the monograms, Phocas is certain for *f* and *m*, (Plate I.); John is probable for *h*, and Theodore for *a*.

It will be noticed that the names Theodore and John seem to occur both in extended and monogrammatic form, the former accompanying the monogram of Phocas, the latter its own monogram. I do not feel confident that the monogram of *c* is correct, on account of the apparent duplication of the letter ϕ. Unfortunately the wax impression is damaged.

If from the technical point of view this silver work from Kyrenia has little that is new to teach us, being similar to other Byzantine plate already mentioned or described, its iconographical importance is perhaps greater than that of any other Byzantine treasure. Viewed on the one hand in relation to the doors of St. Ambrose, and on the other to the illuminated Psalters of the ninth to the twelfth centuries, especially to the "aristocratic" group (see below), with which it has obvious affinities, it confirms the belief that these Psalters owe their classical character less to a sudden renaissance in the ninth century than to the steady persistence of older artistic traditions. The fact that the same composition is used to illustrate the same subject in more than one of these manuscripts had already suggested that they may all have drawn upon an inherited scheme of illustration; but hitherto there had been wanting the visible link which should directly connect them across the intervening age of Justinian with Early Christian times. Now that the treasure has proved that in the sixth century there were in circulation pictures of the story of David closely similar in conception to those in favour in the tenth and eleventh centuries, we are brought a step nearer to the lost early Psalters of the fifth and fourth, the existence of which more than one circumstance had led us to infer.[b]

[a] For the stamps, see *Compte rendu de la Commission Impériale Archéologique*, St. Petersburg, 1878, pp. 148 and 157; L. Stephani, *Die Schlangenfütterung*, etc. p. 6, no. 17; J. Arneth, *Die antiken Gold-und Silber-Monumente*, etc. Vienna, 1850, *Beilage* pl. iv.; and *Archaeologia*, lvii. 166. For the inscription, C. I. G. IV. 8901.

[b] The classical book on Byzantine illuminated MSS. is Professor Kondakoff's *Histoire de l'art byzantin considéré principalement dans les miniatures* (Paris, 1886); but the most succinct account is to be found in the chapters on Byzantine art by M. Gabriel Millet in the new *Histoire générale de l'art*, edited by M. André Michel (see especially vol. i. pp. 207 ff.). Here due stress is laid upon the enduring influence exerted by the early illuminated MSS. in the form of rolls, which must have been in existence as early as the fourth century.

For though in the Catacombs, on early sarcophagi at Rheims and Marseilles, and on the fourth-century ivory casket at Brescia, we have only two Orpheus-like figures (which may or may not be intended for David), and the scene of the fight with Goliath in whole or in part,[a] yet on the threshold of the fifth century the doors of St. Ambrose at Milan[b] present a connected series of episodes; and as six of the nine subjects there chosen correspond with the series in the silver dishes, it would appear that a regular David cycle must have been already in use. That soon after this period the Psalms furnished matter for pictorial illustration we may gather from the choice of the psalm *Laudate dominum de coelis* for mural decoration by Bishop Neon of Ravenna.[c] In the interesting series of frescoes at Bawît in Egypt[d] there is also an extensive correspondence of subjects both to those on the doors and to those on the treasure; while in the case of the ivory casket in the Kircherian Museum at Rome,[e] the number of scenes has considerably increased, and the influence of later Byzantine iconography has become apparent. The six scenes on the ivory book cover of the Princess Melisenda in the British Museum (see above, p. 7) introduce yet further variations.

Arguing from these monuments, some of which are of such remarkable antiquity, we may fairly assume that the same subjects were also reproduced by the earliest Christian illuminators; for manuscripts, from their portability, have at all times inspired other branches of art, and are as likely to have led the way as to have followed in it. There appear therefore to be good grounds for assuming the existence of illuminated Psalters as early as the fourth century,[f] and

[a] A. Goldschmidt, *as above*, 20; F. X. Kraus, *Realencyklopädie der altchristlichen Kunst* s. v. David. For the sarcophagi see Garrucci, *Storia dell' arte Cristiana*, v. pl. 307, figs. 3 and 4, and pl. 341, figs. 1 and 4. For the Brescia casket see H. Graeven's series of photographs, *Italian series*, No. 14, Venturi, *Storia dell' arte Italiana*, i. 290, and Garrucci, *as above*, vi. pl. 442.

[b] See above, p. 10.

[c] Agnellus, *Liber Pontificalis*, in Migne, *Patrologiæ Cursus*, cvi. 517-8; see also F. Wickhoff in *Repertorium für Kunstwissenschaft*, 1894.

[d] Published, as M. Millet has kindly reminded me, by Jean Clédat, *Le Monastère et le nécropole de Baouît, Mémoires . . . . de l'Institut Français d'archéologie orientale du Caire*, 1904, xii. pl. xii. ff. Here the Anointing, the Introduction to Saul, and the Fight with Goliath are in common with the treasure; while David and his brothers before Samuel, and David playing before Saul, are in common with the series on the doors.

[e] See above, p. 5. This casket has a series of thirteen scenes, only three of which correspond to those of the Kyrenia treasure.

[f] It has sometimes been assumed that because no existing illuminated Greek Psalter is earlier

it is probable that these, like several of the surviving illustrated manuscripts of slightly later date (for example, the Vienna Genesis[a] and the Codex Rossanensis[b]) were produced in the Syro-Egyptian or Anatolian artistic province. The influence of such lost books, which were probably in the form, not of codices, but of rolls, may be traced in later manuscripts not only of Byzantine but also of Western origin. The Ashburnham Pentateuch is held to have had an Alexandrine-Jewish model;[c] the Utrecht Psalter, with its obvious inheritance of late classical forms, is supposed to descend from a lost Psalter in the style of the Joshua rotulus of the Vatican;[d] the Joshua rotulus itself is thought to have had a prototype illuminated in the golden age of Early Christian art.[e] Should any such early Psalter ever be recovered, it would doubtless be found to offer points of contact with the carved doors, the Coptic frescoes, and the Kyrenia treasure. Meanwhile, interesting comparisons might be made between particular figures and groups upon the silver dishes and those in the Vienna Genesis, the Joshua roll, and the mosaics of St. Maria Maggiore, all of which are probably inspired by still earlier series of pictures; though to give such resemblances their full value it would be necessary to publish the whole of the treasure, and unfortunately that cannot at present be done.

It has already been indicated that as far as existing Psalters are concerned, the affinities of the treasure lie with the so-called aristocratic group, the relationship being evident in the case of the scene of the Anointing as represented on the dish in Paris (fig. 3) and in the Psalter in the library of St. Mark at Venice. (Fig. 16.) The members of this group, the most notable example of which is

than the ninth century, the period with which the surviving series begins, therefore the illustration of the Psalms in MSS. appeared at that time as something new. Such a view surely rests too exclusively upon negative evidence. (See the review of Tikkanen's book on the Psalter, in *Byzantinische Zeitschrift*, vii. (1898), 253). Moreover internal evidence derived from the illustrated Psalters themselves points, like that of the monuments above described, to the existence of an early David cycle. On this subject *see* Millet, *as above*, p. 225.

[a] W. von Hartel and Franz Wickhoff, *Die Wiener Genesis.* (Vienna, 1895.)

[b] A. Haseloff, *Codex purpureus Rossanensis.* (Berlin.)

[c] J. Strzygowski, *Orient oder Rom*, 32. (Leipzig, 1901.)

[d] H. Graeven, *Die Vorlage des Utrechtpsalters*, in *Repertorium für Kunstwissenschaft*, xxi. (1898), 31.

[e] H. Graeven, *Il rotulo di Giosue in L'Arte*, i. (1898), 228. This MS. is shortly to be published in facsimile by the Vatican library.

the famous Greek MS. No. 139, in the National Library at Paris[a] usually have a limited number of full page miniatures, illustrating the story of David and the "Odes" accompanying the Psalms, each forming a separate composition, and devoid of special dogmatic significance. With this first group, which was

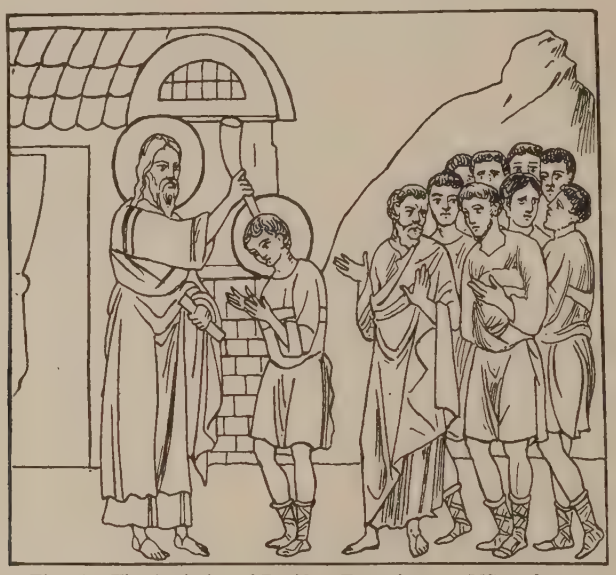


Fig. 16. The Anointing of David. (From the same MS. as fig. 5.)

probably produced for the court and the aristocracy, and largely inspired by monumental prototypes,[b] is contrasted a second, originating in the monasteries at the close of the iconoclastic period.[c] Here the illustration is marginal and continuous, aiming at the elucidation of particular verses and generally didactic

[a] Kindred MSS. are the Vatican Psalter (*Palat.* 381) and Barberini, iii. 39. See J. J. Tikkanen, *Die Psalterillustration im Mittelalter*, i. 113 ff; N. Kondakoff, *Histoire de l'art byzantin*, ii. 31.

[b] Millet, *as above*, 228.

[c] Tikkanen, *as above*, 8 ff, who describes it as the "monastic theological" illustration of the Psalms. Like Kondakoff he notes its polemical aspect, adapted to a popular propaganda, and its close connection with church history. The oldest existing Byzantine Psalter in this style is that known as the Chludoff Psalter, originally brought from Mount Athos, and now at Moscow; it has been published by Kondakoff, who assigns it to the ninth century. Others of almost equal antiquity are the Codex Pantokratoros, still on Mount Athos (Brockhaus, *Die Kunst in den Athos Klostern*, 1891, pp. 177 ff and pl. xvii.-xx.; Uspensky, First voyage to the Monasteries of Mount Athos, 1846. Part 2); and the Greek MS. No. 20, in the Bibliothèque Nationale.

in intention. Although these theological Psalters are also clearly under late classical influence, the retrospective tendency is more conspicuous in the miniatures of the aristocratic group, where the aim of the artist was more exclusively aesthetic, and the result often so antique in character as to suggest a comparison with Pompeiian frescoes. And yet, in deriving inspiration from ancient art the men who painted them were only obeying an instinct which continued to influence Byzantine artists in all periods down to the latest years of decadence.[a] The Kyrenia treasure, possessing such evident affinities with their work, affords further evidence of the continuity of classical tradition in the Eastern Empire, and must be regarded as a valuable document in the history of Byzantine art.

The date of this Kyrenia treasure is evidently the same as that of the earlier treasure from the same place described in *Archaeologia*[b] and mentioned more than once in the course of this paper. That find was ascribed approximately to the second half of the sixth century; and though the discovery of a coin of Constans II. in the present treasure gives the middle of the seventh century as the latest possible limit, there are many points which go to prove that the silver dishes, at any rate, must be older than this coin. There is the similarity in the disposition of the figures and of the architecture with the same features on the shield of Theodosius; there is the analogous character of the accessory objects beneath the exergual line, which suggest the treatment of silver dishes anterior to the sixth century, such as the disc or shield of Valentinian at Geneva;[c] there is the Roman character of the marriage-scene, so like that of the coin of Theodosius II. (fig. 1), and so different from the later Byzantine type in which the figure of Our Lord is introduced; there is the early type of the announcement to David of Samuel's message, where the messenger is still human, and not, as in after times, transformed into an angel; and finally there is the general reminiscence of classical feeling in the treatment and grouping of the figures. An examination of details in like manner reveals analogies with monuments of a considerably earlier date than that of Constans II. The costumes are hardly to be distinguished from those of the fifth and early sixth centuries, and of this the royal costume exemplified in the figure of Saul is a fair criterion. The long chlamys has the *tablion* placed low, and not as usually

[a] See the various examples of imitation quoted by Tikkanen, *Die Genesis Mosaiken in Venedig*, in *Acta Societatis Scientiarum Fennicæ*, vol. xvii. p. 320.

[b] Vol. lvii. 159.

[c] Odobesco, 154.

in later times close to the fibula, while the fibula itself is of the type with straight "tail," which after the sixth century was replaced by the circular variety. The king wears a simple diadem or fillet not unlike that seen on the Barberini diptych and the shield from Kertch, and without the lateral pendants formed of strings of pearls which, beginning in the reign of Justinian, became general from the time of Justin II. (A.D. 566-578). Such points would indeed count for little if the dishes presented very careful copies of early designs, but the character of the stamps or control-marks also points to the sixth century. These are identical in style with those of the treasure in the British Museum, among which there was a monogram of the rectangular outline which in general precedes the cruciform type, and seems to die out after the time of Justinian. We conclude that the silver dishes are more likely to belong to the sixth century than the seventh; and were it not for a frequent weakness and conventionality, a monotony of expression and gesture, eloquent of an art which lives by too servile an imitation of prescribed forms, we might think of the first rather than the second half of the century. But the distance which divides this work from the period of Theodosius is clearly very considerable, and perhaps it is safer to assign them to the later part of the century, in which case the gold jewellery found with the silver plate may well be contemporary. It must be confessed that within certain limits the dating of early Byzantine works in the minor arts is often little better than a process of divination.

There is nothing which absolutely proves that any of the objects were originally made for religious uses.[a] Indeed the worldly character of the jewellery is obvious, and the decoration of domestic plate with biblical subjects must have been by no means unusual at a time when Christian designs loomed so large alike in the major and the minor arts. The fact that the treasure was found in the immediate neighbourhood of a religious house proves little, for secular plate was sometimes bequeathed or presented to the church; and again it is quite possible that the treasure may have been taken to the monastery in the hope of its proving a comparatively safe place in a time of danger.

[a] The only early silver treasure of which this can be predicated with some certainty is that found at Luxor and now in the Cairo Museum. (*Service des antiquités de l'Egypte, Catalogue général des antiquités Egyptiennes: Koptische Kunst*, by J. Strzygowski, Nos. 7201 ff. (Vienna, 1904). The Lampsacus treasure in the British Museum (*Catalogue*, Nos. 376-396) may also in part at least have had a religious origin.

The place of manufacture is also uncertain, but it is on the whole more probable that work of this character was imported into Cyprus from Syria or Egypt than made upon the spot. Alexandria and Antioch were both great centres of the silversmith's art, and it has already been suggested with reference to the jewellery that one or the other may well have been the original home of the treasure. In the present state of our knowledge it would be rash to be too affirmative, but there are facts which rather incline the balance in favour of Syria. Like their neighbours in Sassanian Persia, the silversmiths of Syria were very active during the period preceding the Arab conquest,[a] and the presence on a dish in the earlier Kyrenia treasure in the British Museum of a figure of St. Sergius, a saint enjoying exceptional popularity in Syria, is a small point which may not be without its bearing upon the general question. But it should be remembered that Constantinople also had its silversmiths' quarter, where the votive shield of Justinian, found at Kertch in 1891, is supposed to have been made.[b] It is well known that the wealth of the imperial Vestiarium, or treasure-chamber, in plate of all kinds was almost fabulous, and the accounts given by the Emperor Constantine Porphyrogenitus and others show that the splendour of fine services of silver and gold was always highly appreciated at the Court of Constantinople. It is not to be supposed that all the magnificent salvers and other objects of which we read in their pages were manufactured in the provinces and imported into a metropolis incapable of providing for its own luxurious needs. And it must be remembered that sumptuous plate was not by any means confined to the imperial palaces: all the wealthy nobles in Constantinople were supplied in a similar manner, and the accumulated treasures of the capital, rich in work of all periods from that of the early Roman Empire downwards, must have contained innumerable specimens produced on the shores of the Golden Horn.

The objects represented in fig. 17 are stated to have been found at the same time and place as the treasure. They are all of bronze, and consist of a pricket lamp-stand with two lamps, and several jugs or ewers. The lamps may be com-

[a] M. Smirnoff has treated of this subject in a paper in the *Materials for Russian Archæology* (publication of the Imperial Archæological Commission of St. Petersburg, No. 22, 1899). Unfortunately for English readers the article is written in the Russian language.

[b] *Materials for Russian Archæology*, No. 8, 1892, where this shield is figured and fully discussed. On the wealth of silver plate which was preserved at Constantinople see *Jahrbuch der Kunshistorischen Sammlungen des allerhöchsten Kaiserhauses* (Vienna, 1899): article by H. Graeven, *Ein Reliquien-Kästchen aus Pirano.*

pared with others from the Christian East in various museums,[a] and are hardly likely to be later than the sixth century.

In conclusion the hope may be expressed that the ultimate possessors of the part of the treasure removed to Paris will make haste to publish a series of objects of the highest interest to the study of Christian iconography and to the history of the Byzantine minor arts.

[a] British Museum, *Catalogue of Early Christian and Byzantine Antiquities*, Nos. 495 ff.; Cairo Museum Catalogue, as above, section *Bronze*.

Fig. 17. Bronze objects from Kyrenia. (About $\frac{1}{10}$ scale.)

BRASS OF SIR HUGH HASTINGS (OB. 1347)
IN ELSING CHURCH, NORFOLK

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II.—*On the Brass of Sir Hugh Hastings in Elsing Church, Norfolk. By* Albert Hartshorne, *Esq., F.S.A.; with a note by* W. H. St. John Hope, *Esq., M.A.*

Read 11th May, 1905.

On a casual visit to the Fitzwilliam Museum on 24th October, 1904, a small brass, part of a larger one, was immediately recognised by the writer, from its resemblance to its noble confrères, as one of the long missing latten figures in the niched series forming the supports of the canopy of the great brass of Sir Hugh Hastings, in Elsing church, Norfolk, namely that of Roger, Lord Grey of Ruthin.

On subsequently mentioning the invention to the Director, Dr. James, he, with the obliging courtesy which distinguishes him, not only caused the brass to be sent to the rooms of the Society of Antiquaries, but, better still, expressed his agreement, on the part of the syndicate of the Museum, that the brass should be restored to the monument of which it forms so interesting a portion, with the very proper proviso that it should be refixed in the position in which it was first placed more than five centuries and a half ago, a spirit of salvation that will always commend itself in the rooms of this ancient Society.

It will be convenient now, because it has never been done here before, to give a brief description of the brass of Sir Hugh Hastings, the canopy and the attending figures in its shafts, and short notes of the personages represented in this important memorial. (Plate III.) And it may be at once premised that the description now attempted of the main figure will be general, and apply in extensive

measure to the subsidiary figures also. And although this monument is just removed from the period of the varied and fascinating armour and military habits of the time of Edward II., and is a memorial that a casual observer might dismiss in a few sentences, it will be seen upon fuller study that we have here, both in the principal and in the minor figures, depictures of armour of which a worthy description might rather form the text of a volume, not small, than occupy the attention for less than an hour, to say nothing of the teeming lives of the personages represented.

No one who has been in the habit of examining memorials of this kind can have much doubt as to the origin of the example now under our hand. It is, of course, foreign, possibly Flemish, but more likely French work. Many features point to this foreign source. To mention only a few. No English brass ever had a six-tasselled cushion, and with the exception of that of Sir John Wantone at Wimbish, Essex, of the same date and origin, no other brass in England has the mail represented by this particular convention, probably intended for the finer sort known as "grains d'orge," which creeps through the fingers like strings of pearls, as in the Sinigaglia coat,[a] or as sand from the seashore. Nor does any English brass exhibit a gorget so early, or of this peculiar character. It is true that the Inventory of Louis le Hutin, of 1316,[b] mentions "coleretes" of jazerant of steel, evidently protections for the throat, worn under and not over the mail hood. And these may be taken as the origin of the gorget proper. Hastings's example is articulated, and appears, as here, to have been first introduced as a very necessary and separate defence, or reinforcement of the camail, itself the natural successor of the hood of mail. In later times the articulated gorget, or "gorgerete de plates," as in Louis le Hutin's Inventory, rose higher, following the form and gradually covering and taking the place of the camail. It was attached to the bascinet, and extended by degrees until just before 1420, when the camail having been reduced to a gorget or standard of mail, its bottom edge only, with its row of free gilded rings, was to be seen. Nearly half a century later the introduction of the salade brought the *bavière*, which for its time did the work of the gorget, the latter reappearing of a different shape in the early years of the sixteenth century, both in mail and plate, later, and in the seventeenth century spreading

[a] This rare and beautiful coat of mail was shown at the Helmet and Mail Exhibition, at the rooms of the Royal Archæological Institute, in 1880, and is illustrated in Mr. J. Starkie Gardner's *Foreign Armour in England* (London, 1898), 19, fig. 1.

[b] Called "Le Hutin," *à cause de ses goûts désordonnés.* He was brother of Isabella, wife of Edward II., and succeeded his father Philip IV., "Le Bel," as Louis X., in 1314.

over the chest, flattening, and dwindling finally to a mere shell-like item, worn up to George III.'s time *in memoriam* of the longest lived and most persistent defence of the ages of chivalry.[a]

It is to be noticed that the vizor of the rounded bascinet could not act as the lattener, from his imperfect knowledge of perspective, has shown it. But we know what he meant. It would have rotated on the pivots at the sides and so protected the face. Many a vizor shown in alabaster effigies could not have actually performed its office on account of the block not being of sufficient depth to allow for its projection. Brasses, like effigies, are only accurate up to a certain point, outstanding sculptured details in the latter depending upon the amplitude of the stone. The information they afford must be supplemented by the study of illuminated manuscripts, for very little armour of the period under consideration exists. We have a score of helms and helmets, and a few isolated pieces of plate, a coute, a poleyn, a cuff of a gauntlet, perchance a fragment of jazerine, or a portion of a camail. All the rest of the fascinating panoplies of which inventories tell us so much have succumbed to "the tooth of time and razure of oblivion."

Hastings wears a gambeson, of which the ends of the sleeves, quilted in parallel lines, appear beneath the sleeves of the hauberk. These latter are turned back from the wrists and shown as if lined or *doublé* with fur, perhaps intended for deer skin. They depend, as do the mail mittens of the French royal effigies, such as those formerly at St. Denis and in the Dominicans Friary in Paris,[b] the hands in these cases having been passed through holes in the mittens' palms, to be laced up for use after immemorial Oriental practice. There are certain examples in effigies in England; Gervase Alard at Winchelsea is one. Similarly the bare hands, though sometimes met with in armed effigies and brasses of this period in England (John d'Abernoun, 1325, is an example) are distinctly French. The higher Gallic view being that a man takes off his gauntlets when he raises his hands in prayer, just as with us in later times the silent warrior is shown to

[a] Already in the first period of the Thirty Years' War the gorget had lost its laminations. At that time it was worn under the falling lace collar, and extended in a pointed form half way down the chest and over the buff coat, and so it continued during the Civil Wars. In the time of William III. the width had been retained but the point had been rounded off, and thus it continued until the abolition of the buff coat in the reign of George. I.

[b] Many of these are illustrated by Mr. Kerrich's own etchings in *Archaeologia* (xviii. 186-196) from drawings taken by him before the Great Revolution, and bequeathed to the British Museum in 1828. The original etched copper plates are in the writer's possession.

remove one of them when he clasps the fingers of his faithful companion in alabaster on the tombs from Chellaston, Hartshorne, or Tutbury. Thus does Thomas Beauchamp in his effigy at Warwick, died 1370, and Ralph Green at Lowick, Northamptonshire, died 1419,

The defences for the arms, arrière and avant bras, in demi mail and plate, are much the same with Sir Hugh Hastings as we have them in English monuments of the time. And it is quite usual in mixed armour to arrange the plates and mail on the arms alternately within and without. It is exactly so in the Fitzralph brass at Pebmarsh, Essex, about 1320, and clearly very practical. In the Hastings example there is, besides the narrow midway straps, a settling or steadying band next the wrists, possibly of iron. Roundles of unequal size protect the armpits and the elbows. The shield, exceedingly small, is beautifully diapered, and shows a label of three points as on the skirted jupon. It is of rare occurrence at this time on brasses; the latest medieval example that has been noticed is that of William de Aldeburgh, Aldbrough, Yorkshire, 1360; the targe or parma of the Roman was naturally reintroduced in Renaissance times, after two centuries' disuse of this military attribute. Hastings is shown carrying his shield high on the arm, perhaps as a concession by the artist to English custom; it is further saved by the gigue as in far earlier days.

The body of the man is clad in a garment that marks the transition from the cyclas, which appears to have been a purely English habit, to the jupon. There were three garments. The surcote, in early times scanty in the skirt, and practicable compared with those of the fourteenth century, with their voluminous folds. It was on account of wearing one of the old-fashioned habits that Sir John Chandos in 1369 got his legs entangled, "si que en passant il s'entortilla en son parement qui était sur le plus long," so he stumbled and fell an easy prey to the enemy. These disastrous conditions were always to be dreaded when the way was slippery and horsemen were suddenly called upon, as in the improved tactics, to fight on foot. Their legs became involved in the ample draperies, and they were soon dispatched. The skirts in front were therefore cut off, the body was tightened, and the cyclas was devised. It had only a short period of use, and not many effigies and brasses exhibit it. But the cyclas is always associated with mixed armour and costume of the most interesting kind. The effigies of Sir Oliver Ingham at Ingham and John Lyons at Warkworth are noted examples, and so are specially the brasses of John de Creke and John d'Abernoun.

The long flapping back skirt of the cyclas was soon found to be quite useless, and it was cut off, the body was further drawn in, and the skirted jupon appeared

just as we see it worn by Sir Hugh Hastings. In the Tourney Book of that

Shield of arms of Sir Hugh Hastings, from his brass in Elsing Church, Norfolk. (½ linear.)

interesting personage "le bon roy René d'Anjou" (1409-1480) it is stated that the surcote "doit être sans plis afin qu'on connait mieux de quoi sont les armes."

This condition is well carried out in the blazonry of Hastings's jupon, and it is a fairly early example of a brass with its heraldry in that position.

The sword, of which the pommel is decorated with a small shield of the Hastings arms, is suspended, without the subsidiary waist strap or *cingulum* of earlier times, from a rather narrow diagonal belt, closely studded with circular and lozengy bosses; it is apparently kept in place by its weight and leverage only, though one suspects a supporting hook or loop behind. Such a belt, like the whole of the man's armour, is but a pale reflection of the rich panoplies of the cyclas period, and the belt may be contrasted, very much to its dispraise, with those of Sir John Lyons at Warkworth, Northamptonshire, 1348, a Blanchfront at Alvechurch, Worcestershire, and a Gifford at Leckhampton, Gloucestershire. The old fashion of carrying the lethal weapon from two points on the scabbard has now given way to suspension from a single locket at the mouth of it; and in its way this simple system plainly foreshadows the coming and radical change when the skirted jupon almost suddenly gives place to the tight jupon proper, and the well-known baudric, of which the Black Prince's effigy offers such conspicuous examples.[a]

That the minds of military men were at this precise time much given to change is sufficiently shown by the variety of the body garment and sword belts on the monuments. Styles of course overlapped, and some forward spirits would have the newest designs. There were then no harassing cast-iron "dress regulations" issuing from a mediæval War Office, and many, like Sir Oliver Ingham, were alert to discard the old and adopt the new; but no doubt the ancient surcote, the cyclas, the skirted jupon, and the jupon proper, all appeared on the fields of Crecy (1346) and Poitiers (1356), and mixed armour, swords, and belts, of whose beauty we are now but faintly aware from the inventories, the chroniclers, the illuminated manuscripts, and the perishing details of effigies, brightened those historic and glorious arenas to an extent that we could hardly have otherwise realised. What a sight it must have been, and how the blood and the wine must have flowed!

The thighs of Sir Hugh Hastings are covered with a studded defence, sometimes called jazerant, the precursor and the reverse of brigantine, and of which there are several varieties and different explanations. It need only be said now that the studs are connected with small iron plates under the silk, cloth, or velvet foundation, and that the construction of the "pairs of plates," so often spoken of

[a] For the different methods of suspending the sword during the Middle Ages, see article on "Sword Belts," by the writer, *Archæological Journal*, xlviii. 320-340.

ST. GEORGE, AND ANGELS BEARING UP THE SOUL

FROM THE BRASS OF SIR HUGH HASTINGS AT ELSING, NORFOLK

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in inventories of the fourteenth century, was much the same defence for the body, worn under the surcote, and all were *doublé* with canvas. The genouillères have high salient and fluted bosses, and are strapped over leather foundations, to which the cuissards and mail chausses are attached by studs. At this point the despoilers of a time subsequent to 1782 appear, and our dissection comes to an abrupt end, but it is supplemented by the rubbing, taken in that year, preserved in the British Museum.[a] From this we know that the figure wore mail chausses, and that the feet, resting upon a lion, were armed with rowelled spurs.

Before quitting the paramount figure, attention should be called to the posture of the body, set or swayed to the dexter side. It is true that this is not the common treatment of the figure in England, and it happens that the brass of Sir John Wantone, already spoken of, has the same characteristic. But we have it also in sculpture, as in the two statues of ladies in the upper hall of the Vicars Choral at Wells, in the fourteenth-century alabaster figure of the Virgin found at Flawford, in that in the Chapter House at York, and elsewhere, and it may perhaps be fairly said that these examples are due to French influence. The figures of Edward III. and Ralph Lord Stafford in the supports of the Hastings canopy are exaggerated instances, and so was that of Laurence Hastings now gone. This convention had great attraction for the glass painters, the ivory carvers, and the seal engravers in England, and was not unknown in German art.

With regard to the main canopy, its details are so different from, it is not here said inferior to, the work in the side supports, as to suggest a distinct hand. The eight attendant figures, certainly not "weepers" in this case, seem to be due to at least two engravers, each with his own convention for mail. The brackets for the figures representing the Coronation of Our Lady are admirable representations in refined Gothic seats; the crockets and the knotts are fashioned with the horned flower, which is not a special French feature, and the manner of the redeemed soul borne by angels in a napkin (Plate IV.) is common to both England and France. St. George in the spandrel carries the well-known continental heart-shaped shield, perhaps more German than French, and the hollow-backed horse appears as a jibber, excusable perhaps under the circumstances of what he is expected to face, not an artistic and pictorial dragon, but the same thing in another shape, Satan himself. (Plate IV.) This subject may be con-

[a] Add. MS. 32479, H. 3 (Douce Coll.). This has been well reproduced by Mr. E. M. Beloe, jun. in *A Series of Fourteenth Century Monumental Brasses in Norfolk.*

trasted with the admirable galloping figure in the upper spandrel of the canopy of the tomb of Aymer de Valence in Westminster Abbey.

Sir Hugh Hastings was elder son of John second Baron Hastings by his second wife Isabel, daughter of Hugh le Despenser the Elder. He was consequently half-uncle of Laurence Hastings, to be spoken of later on.

He served in Flanders in 1340 and 1342, and was summoned to parliament in the latter year only. Hastings held command again in Flanders in 1343, and in the same year was in active military service in Brittany. In 1345 he went to Gascony with Lancaster and took part in the operations at Bergerac and Auberoche, and in 1346 he formed one of the garrison at the siege of Aiguillon. He died in 1347, having married Margery, elder daughter of Sir John Foliot, in whose right he acquired estates at Gressinghall, and at Elsing, Norfolk, where his body lies interred. In Elsing chancel was formerly a slab with this inscription: "Yis church hathe been wrowt by Howe de Hastyng and Margaret hys wyf."

Of more importance in many respects than the paramount effigy are the subsidiary figures in the supports of the canopy. They stand in pairs in their niches against diapered backgrounds, and represent the friends, or so-called "weepers," as round the altar tomb of an effigy. Thus we have, reading from dexter to sinister, I. Edward III.; II. his second cousin Henry Plantagenet, Earl of Lancaster. (Plate V.) Both the king and the earl, relieved by flowery backgrounds, are habited alike, the former showing on his jupon *France ancient and England quarterly*, and the latter *England with a label of France*. The king wears no sword-belt or scabbard, but carries his naked brand erect, a symbol of sovereign power. So does Henry the Lion in his effigy at Brunswick. With the exception of the chausses being faced with demi-jambs and sollerets, and the absence of roundels and gorget, the costume of these two personages is much the same as that of the principal figure. The mail of the camail-like gorget of Lancaster is of unusual size (as we also have it in the fore-arm of the great figure), showing only four rows where at least twice as many might have been expected. Within his left arm Lancaster bears the lance with its pennon, and in his hand is the helm with its mantling, chapeau, and crest, admirable and oft-quoted examples. This and the effigy of Lord Grey of Ruthin are the only bare-headed figures, and both countenances have so much individuality that the question of portraiture might arise. But the Earl of Lancaster is shown as a man long past middle age, which he can hardly have been in 1347, having been born in 1299; and portraiture in brasses is as little to be expected at this time as in effigies; and under the circum-

KING EDWARD III, AND HENRY, EARL OF LANCASTER

FROM THE BRASS OF SIR HUGH HASTINGS AT ELSING, NORFOLK

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THOMAS BEAUCHAMP, EARL OF WARWICK, AND RALPH, LORD STAFFORD

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stances of the production of this memorial there is hardly likely to have been an exception made, much as one might like to have it so.[a]

The story of the lives of Henry of Lancaster and his companions who, headed by the sovereign, are exhibited at Elsing "in their habits as they lived," would be little less than an epitome of the military operations of their age. Of Lancaster, particularly, it must suffice now to set down that he was actively engaged in Scotland in 1333, and commanded the English army in that country in 1337, in which year, and in 1338, he also served in Flanders. In 1341 he was again captain-general of the army against the Scots, and acted as captain of Aquitaine from 1345 to 1347, when he succeeded his father in his honours. In Gascony, in 1345, he took Bergerac on the Dordogne by assault, and was at the surrender of Auberoche, occupied Aiguillon, and then hurrying away to Picardy fought in the division commanded by the Black Prince at Crecy, August 28th, 1346. Returning to Aquitaine he stormed Lusignac and Poitiers in 1346. Appointed captain of Gascony and Poitou in 1349, he went thither with Ralph Lord Stafford and others, and took measures for the defence of the province. Created Duke of Lancaster in 1351, he was prominent in further service both by sea and land, having the conduct of the campaigns both in Normandy and Britanny in 1356 and 1357; and this trusted councillor of the king was the chief negotiator of the Peace of Brétigny in 1360. Lancaster died in the following year and was buried at Leicester. He married Isabel, daughter of Henry Lord Beaumont, and cousin of Isabel queen of Edward II. His daughter and heir, Blanche, married John of Gaunt, and became ancestress of the House of Lancaster.

The next pair, or rather the single figure No. III. on the dexter side, for its pendant has vanished, stands against a background diapered lozengewise. This represents Thomas Beauchamp, Earl of Warwick. (Plate VI.)

Again, we have much the same military habits as shown by the main figure; the identical skirted jupon with the armorial bearings limited or restricted by the camail and the sword belt. The sword is not visible, but Beauchamp carries a lance, often then called a glaive, with its pennon, in his right hand. In this figure the vizored bascinet is the most important item. It is precisely the same as that worn by the opposite and companion figure now gone, but known to have represented Laurence Hastings, No. IV., as well as by Ralph Lord Stafford on the sinister side of the next pair, of which the dexter pendant, Le Despenser, No. V., has vanished.

[a] See "Portraiture in Monumental Effigies, and Ancient Schools of Sculpture in England" (Pollard, Exeter, 1899), by the writer.

Thomas Beauchamp was distinguished among a crowd of men of distinction. He attended the king in his wars in Scotland and France, and did great service in 1340. At Crecy, in 1346, he led the van under the Black Prince, and was conspicuous with his deadly battle-axe ten years later at Poitiers. Succeeding his father as Earl of Warwick in 1315 he built the tower of his castle, called Cæsar's, and dying in France in 1369, his body was brought for burial in the choir of St. Mary's at Warwick, of his own building, under a notable tomb of alabaster. This exhibits thirty-six weepers and sustains Beauchamp's effigy, showing him clasping the hand of his wife Katharine, daughter of Roger Mortimer, first Earl of March, lord of many strongholds.

Of Beauchamp's companion figure, No. IV., that of Laurence Hastings, we fortunately know the appearance exactly, from the rubbing taken in 1782.[a] It resembled that of the Earl of Warwick in all respects, save that he was shown in a gorget similar to that of the paramount figure, and that roundles appeared on the left shoulder and elbow. The surcote was charged with Hastings and Valence quarterly, an early instance of this disposition by marshalling.

Laurence Hastings succeeded his father John, half-brother of Sir Hugh Hastings, as fourth Lord Hastings and Bergavenny, in 1325. He served early in life with Edward III. in Flanders, and in 1339 was created Earl of Pembroke, as representative of his great-uncle Aylmer de Valence, who died in 1324.

In 1340 he was summoned to the Scottish wars, and accompanied the king thither; he took a prominent part in Lancaster's campaigns in Aquitaine and Gascony in 1345, and was present with him at Bergerac, which he garrisoned, Auberoche, and at Aiguillon, both in its capture and during the long siege in 1346 and 1347. He was engaged in the siege of Calais in the latter year, and died in 1348. He married Agnes, daughter of Roger Mortimer, Earl of March, and sister of Katharine Beauchamp. A freestone effigy at Abergavenny represents him wearing a bascinet with rare cusped and foliated decorations, and a skirted jupon buttoned down the front.

Hugh le Despenser the Elder, Earl of Winchester, married Isabel, daughter of William Beauchamp, Earl of Warwick. His son Hugh, the Younger, espoused Eleanor, daughter of Gilbert of Clare, Earl of Gloucester, sister and co-heir of Gilbert of Clare, his successor. Hugh the Elder was executed as a traitor, under circumstances of shocking barbarity, at Bristol, in 1326. Hugh the Younger met the like fate at Hereford in the same year, leaving two sons.

[a] It is also engraved full size, with the original colouring, by John Carter in his *Specimens of Ancient Sculpture and Painting* (London, 1780), i. 37.

The elder, Hugh, married Elizabeth, daughter of William Montacute, first Earl of Salisbury, and dying in February, 1348-9, without issue, rests under a very sumptuous canopied tomb, with alabaster effigies of himself and his wife, beneath the stately vaults of Tewkesbury. The younger son, Edward, died in 1342, leaving a son, Edward le Despenser, No. V., who, for his close association with the military events of his time, had a fitting place among the companions of Hugh Hastings. Edward le Despenser's brass was removed before 1782. He took part in many campaigns in France and was present at the battle of Poitiers in 1356. He was summoned to parliament in 1357, made a Knight of the Garter, and died in 1375, having married Elizabeth, daughter of Bartholomew Lord Burghersh the Younger.[a]

Edward le Despenser is represented by a unique stone effigy at Tewkesbury. He is shown kneeling on a cushion, looking towards the high altar, on the top of the chapel of the Holy Trinity. He wears a bascinet, camail, and jupon, with his arms on diapered fields; the whole is painted to the life.

We are thus brought to No. VI., the Stafford figure, the background of which is diapered with cusped circles enclosing crosses flory. (Plate VI.) In this instance the bascinet again has the salient projection on the vizor's lower edge for raising it or fastening it with a lace to the camail, and in each of the figures wearing this peculiarly shaped attribute the skirted jupon and mixed armour repeat, with very slight differences, the costume of the paramount brass.

In the Stafford figure, which also bears a lance, we have the usual continental fashion of the shield carried on the hip, and this is also the case with the newly-found effigy, No. VII., presently to be spoken of.

In the memorial of Ralph Lord Stafford, we again have a very prominent personage and highly distinguished soldier. The elder son of Edmund Lord Stafford, he served in Scotland, Flanders, and Brittany, and was continually associated with the military expeditions of Henry of Lancaster. He was appointed seneschal of Aquitaine in 1345, and taking part in Lancaster's campaign in Gascony he commanded the attack by water on Bergerac, assisted in the relief of Auberoche, and was present at the defence and surrender of Aiguillon. He fought at Crecy, and assisted at the siege and surrender of Calais in 1347. In the next year he was created an original Knight of the Garter, and in 1351 advanced to the earldom of Stafford. In 1352 he was appointed lieutenant and captain of Aquitaine. He fought at Poitiers in 1356, went with the king to

[a] His son Thomas, in virtue of his descent from Eleanor de Clare, was created Earl of Gloucester.

Scotland in the same year, and in 1360 was one of the commissioners who drew up the Treaty of Brétigny. He is said to have again served in France in 1365 and 1367, and died at his castle at Tonbridge in 1372, worn out with arduous military service. He married first Katherine, daughter of Sir John Hastang, and secondly Margaret, daughter and heir of Hugh Audeley, Earl of Gloucester.

The rediscovered figure, No. VII., forms the dexter figure of the bottom pair, the backgrounds being treated as diapers of squares with alternately suns and a wrythen design on a field of red pigment, now hardly perceptible. (Plate VII.) If it could be shown that the face of Lancaster is a portrait, perhaps a still stronger case might be presented by the countenance here depicted for that of Roger Lord Grey of Ruthin, but for like reasons this may not be. He can hardly have been forty-five in 1347, and a much older man is shown. Here also we have armour closely allied in character to that of the principal figure. But as each of the minor ones, already spoken of, presents some slight points of difference in its arming items, so the effigy that has now been happily recovered exhibits some features not illustrated by another. This has, as its peculiar detail, the collar of the gambeson above the mail collar; and this is a feature of exceedingly rare representation, because it is always concealed by the hood, or by the camail. As in the Stafford and St. Amand figures, the shield has been let into the brass, but has long since vanished.[a]

Hitherto we have noticed only the sword and the lance as the weapons represented on this monument. The newly-found figure is therefore the more welcome because it gives an example of a much rarer instrument. He leans upon the poleaxe, often also loosely called a glaive, and known in Germany as a Wurfbeil, Hacke, Axt (our own bill, hatchet, axe) and later as a Lange Wurfhacke, which this instrument strictly is. It recalls the older martel or horseman's hammer, such as we see in the hand of the very early Purbeck warrior at Malvern. And the poleaxe, like that murderous weapon the martel, would, in the hands of a powerful man, have caused untold havoc in breaking up the coats of mail and smashing the bascinets and the heads within them. Such were the prototypes of the bills of the sixteenth century, and it may be recalled that the bill-men then had their special place in the array, and when the right and dread moment arrived, did what was significantly called "the slaughter of the battle." He who wielded the poleaxe on the fields of France had an arduous task, and one is not surprised to see Lord Grey shown as resting from his bloody labours. The axe,

[a] The shields were of coloured glass and not enamel, inserted in the manner described by Mr. Hope in the Postscript to this Paper.

ROGER, LORD GREY OF RUTHIN, AND ALMARIC, LORD ST. AMAND

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both short handled and long, was carried by horsemen in a ring at the saddle-bow, and in a ring on the baudric.[a] So general was its use that it might appear surprising how rarely it is shown in effigies; but it was not the honourable and knightly weapon like the sword.

Roger, first Lord Grey of Ruthin, was younger son of John de Grey, second Lord Grey of Wilton, but the eldest by his second wife. He came into possession of Ruthin Castle on the death of his father in 1323, having already served in the Scottish expedition of 1318. He sat in the parliament of York in 1322, and was summoned as Roger de Grey two years later. In 1331 he had the custody of Abergavenny Castle, his wife's nephew, Laurence de Hastings, being then under age. In 1341 he was again occupied in the Scottish wars; in 1343 was ordered to provide men and arms for the king's service in France, and in 1345 crossed the sea with the king, doubtless participating in Lancaster's Gascony campaign in that year, and exercising his axe at Crecy in 1346. He died in 1353, having married Elizabeth, daughter of John Hastings by Isabel de Valence, niece of Henry III. and half-sister of Sir Hugh Hastings.

The companion figure of Lord Grey, No. VIII., that of Almaric Lord Saint Amand (Plate VII.), generally habited like the rest, exhibits as features of special interest in his armour, the "iron hat," and the salient plate gorget much as with the main figure, and in profile like a bavière, objects of which probably no other brass exhibits parallel instances. The hat, rimmed and ridged, is the far-away ancestor of the cabasset and morion of Renaissance times. The shield, now gone, has been let in to the brass.[b]

Almaric de Saint Amand, son of John, second baron, had livery of his lands in 1335, and served in Scotland in 1338 and in the French wars of 1342, 1345 (the year of Lancaster's Gascony campaign) and in 1346, the year of Crecy. In 1347 he was granted £200 a year for his military exertions. He served in Scotland in 1355, and was appointed justiciar of Ireland in 1357, with a fee of £500 a year. He served again in France in 1368, and was summoned to parliament from 1370 to his death in 1382. His male line became extinct on the death of his son Almaric in 1402.

With regard generally to the distinguished personages whose effigies surround

[a] In the possession of Sir J. Charles Robinson is the centre-piece of a baudric in copper gilt, decorated with leaves in relief, and having a large movable ring attached to the lower edge. Within a circle in the centre are the arms of Nassau in enamel. This is perhaps German, about 1390.

[b] It was of glass, and not enamel. See Postscript.

the presentment of Sir Hugh Hastings, it has been seen that their names are as household words from the history of the stirring reign of Edward III. The figures chosen to watch round and dignify the grave of the soldier at Elsing were not selected at haphasard. The king is there naturally as head of the military forces of the kingdom, "mighty victor, mighty lord," and the remaining seven warriors appear either as relatives of Hastings, such as his half-nephew Laurence and his half-brother-in-law Lord Grey of Ruthin; or in consideration of having fought with him in Gascony under Lancaster, as did Laurence Hastings and Ralph Stafford; or in token of their having taken part in the glorious battle of Crecy, as was the privilege of Lancaster, Beauchamp, Stafford, Grey of Ruthin, and Saint Amand. Le Despenser stands among this goodly company not, as far as can be judged from what history records, on account of having participated in the above-mentioned military operations, but as a person of ancient lineage and great position, and without doubt also as a friend of the dead man. With regard further to the six others, to which the sovereign must be added, as they fought in the "dreadful harmony" of war so they are most appropriately shown assembled round the grave of the friend, the relative, the companion in arms.

The accompanying plates are from photographs taken directly from the brass for the Society by Mr. F. Ralph, sen., of Dersingham, under the kind supervision of Mr. E. M. Beloe, junr., of King's Lynn.

POSTSCRIPT.

A note on some peculiarities of the Hastings Brass. *By* W. H. St. John Hope, *Esq., M.A.*[a]

On the occasion of the reading, on the 11th of May last, of Mr. Hartshorne's paper on the brass of Sir Hugh Hastings at Elsing, I noticed in the lantern slides which illustrated it that certain parts of the slab were distinguished by patches of some white substance, and that portions of the brass itself seemed filled in with the same material. My first thought was that the white represented pieces of paper laid down to assist the photographer in focussing, but on examination of the slides I found that this was not so, as the white patches were symmetrically arranged and clearly parts of the original work of the monument.

[a] Read 5th April, 1906.

Although I had made a rubbing of the brass some years ago I had not then noticed the white additions, and I have not been able to find any reference to them by writers who have described the brass in detail, even by such careful observers as the Rev. Herbert Haines, the Rev. Charles Boutell, or the Rev. C. R. Manning. I again visited Elsing Church on the 30th of August last in order to place in the rector's hands, with the approval of the director of the Fitzwilliam Museum, the lately recovered figure of Lord Grey of Ruthin, but beyond verifying the existence of the white patches and the fact that they were not inlaid pieces of stone I was not able to make a further examination owing to the brass being photographed at the time for the Society.

Although recent writers have taken no notice of the slab certain peculiarities beside the style of the brass were duly noted by John Carter more than a century ago. In his description of the monument in his *Specimens of Ancient Sculpture and Painting*,[a] he says:

> The brasses are not let into the stone, but riveted down upon it; and the whole was formerly made level by an enamel of various colours, laid upon the stone, equal to the thickness of the brass.
>
> All the shields, which are now black,[b] were formerly filled with it, and had the arms enamelled in their proper colours: the engraved lines on the brasses were likewise filled with it in various colours, and the arms thereon engraved were by that means in their proper blazon. On the fillet, whereon the inscription was, the ground was red; some of the red enamel still remaining on one small piece now only left. . . . When entire and enamelled it must have been excessively beautiful, for even now in its decay many of its beauties remain.

In another passage (p. 38), in his description of the figure of the Earl of Pembroke, Carter says, in referring to an ink impression taken by the Rev. Sir John Cullum, bt. and himself in 1781:

> Before the brasses were daubed over with printers ink by Sir *John* and me, I observed in one of the engraved lines something of a red colour, which I then thought was originally put there, when the brasses were first laid down.
>
> I went again to examine the monument, carrying a graving tool with me, when, after taking out the remains of the printing ink, and likewise the dirt which had been trodden into the lines during the centuries it had lain underfoot, I plainly perceived that originally the engraved lines of the whole brass work had been filled with compositions of various colours. . . . .
>
> In the general description I have observed, that the brasses were not let into, but were

[a] London, 1780, vol. i. 13.

[b] Corrected on page 38 as an *erratum* to "blank."

riveted down upon the stone, and that the whole had formerly been made level by an enamel of various colours laid upon the rough surface of the stone, equal to the thickness of the brass, which is barely one-eighth of an inch.

This enamel by length of time is now entirely worn away and gone, having left the surface of the stone bare and rough; but, on scraping the sides of the brass, I could in places perceive that a body of different colours had lain against them, and which most probably somewhat resembled modern *French* marbled paper, though perhaps the colours were neither so bright nor various.

That the lines of the brass were throughout filled in with pastes or enamels of different colours there is no doubt whatever, but that the surface of the stone was covered with enamel is most unlikely. As I was not able at the time to visit Elsing again myself, I sent a transcript of Carter's statement to the rector, the Rev. Henry A. S. Atwood, asking him to be kind enough to examine the stone for any possible traces of the material described, and also to give me his opinion as to the nature of the substance forming the white patches. Mr. Atwood's reply was to the effect (i) that the white patches were composed of some kind of plaster, and were certainly not stone, (ii) that although abundant traces of coloured enamel were to be found in the engraved lines of the brass, there was nothing to show that the rough surface of the stone had ever been covered with enamel.

As both rubbings and photographs of the brass seemed to show that in the angle where the canopy joins Henry of Lancaster's figure there remained part of the original surface of the brass, I again wrote to Mr. Atwood and asked him to examine it. His reply was as follows:

With regard to the fragment where the canopy joins the figure of the Duke of Lancaster, and also on the other side, I cannot discern enamel, unless what I send you in packet No. II. is such in a decayed form. I also send you in packet No. I. two pieces of what appear to be glass, but there is a portion of the canopy I find on close inspection quite full of it, packed closely together, much cracked, but with a perfectly level surface . . . . it may be of course common glass crushed in with the heel at one time or another.

Of the two packets enclosed by the rector, that numbered II. contained fragments which were evidently of Purbeck marble, and that numbered I. pieces of what Mr. Atwood had rightly described as glass.

The marble is only what I expected, but the presence of the glass was decidedly startling, for it at once raised the question whether the brass had not been inlaid with it, since it was most improbable that the remaining fragment could be of accidental origin.

So important a point could be decided only by another journey to Elsing.

This I was not able to make until two days ago, when a careful examination of the monument disclosed the following facts:

First, it is quite clear that the brass was originally inlaid in the usual manner, and level with the surface, in a slab of Purbeck marble. The surface of this is now entirely decayed away, except in the protected angle where the canopy joins Henry of Lancaster's figure, and there is no foundation whatever for Carter's conjecture that the slab was covered with enamel. In fact, his suggestion that such enamel "most probably somewhat resembled modern French marbled paper," which not inaptly describes the appearance of some pieces of Purbeck marble, shows that he had mistaken the marble itself for his supposed enamel.

Secondly, there can be no doubt that the white patches are of plaster or gesso,[a] and that this formed a cement for attaching to the stone pieces of coloured glass as part of the decoration of the brass. In the single place where the glass remains, in the lowest piercing of the cusping of the canopy on the sinister side, it is clearly underlaid by the white cement, against which the greenish tint of the glass itself shows up quite strongly. And although the rest of the glass decoration has long perished the beds for it are left, and tiny fragments of it can be detected here and there in the sharp angles of the cusping. Moreover, in the larger openings of the canopy, on either side of the St. George, the points of the cusps are all cut away underneath for the easier insertion of the enclosed glazing.

A reference to the photograph of the slab shows that all the openings of the main canopy were originally filled with the glass decoration.

It is also evident that the little shields, now lost, once held by the four lower figures in the canopy shafts were not, as has been assumed hitherto, of enamelled copper, but of coloured glass. The white cement for fixing this may still be seen beneath the Stafford and St. Amand figures, and the holes are left for the corresponding patches under Lord Grey's figure[b] and the missing one above. The four upper figures are designed differently.

With regard to the four detached patches of the white cement which show above the canopy, there can be no doubt, notwithstanding the decayed condition of the slab, that they mark the places of as many small shields, each about 3 inches long and $2\frac{1}{4}$ inches broad across the top. As there are no signs or remains of rivets round them, these shields were evidently of coloured glass edged

[a] In the spandrel on the dexter side of the St. George a pebble is embedded in the plaster.

[b] The hole has unfortunately been filled up with pitch in the recent refixing of the figure.

with brass, and fixed into casements cut for them in the marble by the same white cement as elsewhere.

A comparison of the present state of the Hastings brass with the engraving of it given by Carter shows that the addition of these hitherto unnoticed shields enables us to recover the whole of the original scheme of the brass, the only points wanting being the shape of the censers held by the angels at the top, and the style of the marginal inscription described by Carter and so provokingly omitted in his engraving. We of course know nothing of the designs of the glass decorations or of the charges on the four detached shields.

The Hastings brass at Elsing has so long been regarded as different from all other such memorials in England, and as belonging to a class by itself, that the additional fact of its being the only known brass decorated with coloured glass can but enhance its unique interest. So far as I am aware the only other existing brass that may perhaps have been similarly ornamented is the large figure of Margaret de Camoys, of a date *circa* 1310, in the nave of Trotton church, Sussex. This has openings cut in the dress for the insertion of nine shields of arms, all now lost. They have hitherto been supposed to have been executed in enamel, but it is quite possible that, like those on the Elsing brass, they may have been of coloured glass. I accordingly asked the rector of Trotton, the Rev. J. F. Ashton, to be kind enough to examine the slab for any traces of underlying cement, but he replies that "the spaces occupied originally by the shields only show the surface (apparently) of the stone," and that "there is no sign, so far as we can discover, of anything in the way of glass enamel."

The use of glass, apart from glass mosaic, as a decorative adjunct to ornamental stonework is of course not unknown in this country, and it will suffice to mention the panels set in Prior Henry of Eastry's canopy over the president's seat in the chapter-house at Christchurch, Canterbury, and the traces of glass decoration on the tomb of Edmund earl of Lancaster (ob. 1296) at Westminster. But to inlay a brass with so fragile a material is most unusual, and it will be interesting to know whether any other instances have been noticed, either in this country or abroad.

It only remains to add that all the loose pieces of the Hastings brass, including the long-lost figure of Lord Grey of Ruthin, and several fragments in private hands, have now been securely refixed at the cost of the Society of Antiquaries, and to protect the monument from further injury, with the approval of the Executive Committee the slab has been sunk below the pavement and covered with oak flaps level with the floor.

III.—*On two Marble Sculptures and a Mithraic Relief of the Roman period found in London.* *By* F. Haverfield, *Esq., M.A., Hon. LL.D., F.S.A.*

Read 8th February, 1906.

Roman London held a special position in the Roman province of Britain. Planted on an excellent harbour and waterway, at the meeting point of the most important roads, it quickly grew into a flourishing town. Within fifteen years of the Claudian invasion it was renowned for its trade and thronged with merchants and merchandise. Before long it became the centre of the fiscal administration, and though it was not the capital of the province, and seems never to have even attained the rank of a municipality, it received in later times the title Augusta, and a mint was set up in it. Its surviving remains fully confirm its reputation. London is the one place in our island which has yielded Roman objects of artistic merit in real abundance. In general, the province of Britain, however thoroughly Romanised, appears to have contained little of wealth and luxury, and the finest products of Roman or Romano-provincial art, whether sculpture or glass or jewelry, were seldom seen in it. So far as they do occur, they are commonest in London.

Amongst these choicer works of Roman art that have been found in London we must certainly reckon two pieces of sculpture in foreign marble and an inscribed Mithraic monument, which are now in the collection of our Fellow, Mr. W. Ransom, of Hitchin, and were exhibited by him to the Society on 22nd June, 1905. They were bought by him in the latter part of 1889 from the late James Smith, an East-end dealer in antiquities. According to Smith, they had just been found in the City, near the middle of Walbrook, at a depth of 20 or 22 feet, along with

potsherds and hairpins of Roman character. Mr. Ransom writes to me that he had at various times several dealings with Smith, and always considered him truthful and straight in the information which he gave. He adds that, just at the time when he purchased the objects, deep sewerage work, many yards long, was in progress in Walbrook, near Bond Court, and on one occasion he climbed down into it, and at the bottom picked out Roman potsherds, including Samian, and noted traces as of an ancient streambed. This seems to be, on the whole, satisfactory evidence that the objects were found in London and are not recent imports from abroad.

The question may be raised whether this evidence justifies us in ascribing the three objects to Roman London. It is well known that a vast number of Roman remains of all sorts have been imported into England by travellers and connoisseurs, and many of these have been lost, and some even buried and dug up again. Some instances of this fortune are very strange and striking, and I will cite two or three. An inscribed stele, which was seen at Athens in the seventeenth century, was found in the nineteenth century fifteen feet deep in earth under 67, New Bond Street in London. A Greek inscription from Smyrna was recovered during the construction of the underground District Railway. Another Greek inscription, known to have existed in Islington in 1774, was in 1879 rediscovered during excavations in Tottenham Court Road. Still stranger, a dedication to the Greek Mēn, presumably from Asia Minor, was found some years ago deep in the ground on which a new hotel was being built at Tonbridge. With such cases in mind, one might be tempted to point out that two of Mr. Ransom's three pieces consist of foreign marble, and show an excellence unusual in Roman Britain. Hence it would be easy to conclude that they were not Romano-British in any sense, but modern imports, lost or thrown away, and by the changes of fortune buried deep below the City. I think, however, that the available evidence is unfavourable to such a conclusion. No reason seems to exist for doubting that the dealer told Mr. Ransom the truth, and that the sculptures were discovered in the Walbrook sewerage works. If so, they would appear to have been discovered in a stratum of local Roman objects, such as potsherds and pins, and they must be taken as genuine local relics of Roman London.

It is a further question whether they were discovered together or separately. To this no definite answer can be given. The works in which they were found extended over some little space, and it is conceivable, under the circumstances, that they may belong to one or to two, or even to three distinct origins.

The pieces have been noticed several times in print. I have published the

PART OF A FIGURE OF A RIVER GOD, IN WHITE MARBLE, FOUND IN LONDON.

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WHITE MARBLE STATUE FOUND IN LONDON.

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Mithraic inscription in the *Ephemeris Epigraphica*,[a] and the *Archæological Journal*,[b] and M. Cumont has discussed all three and illustrated them on a small scale in his *Mystères de Mithra*.[c] The interest of the pieces is so great, however, that it justifies the wish of the Society to have a somewhat fuller publication with larger plates. For this purpose I have, with Mr. Ransom's permission, re-examined them. They are as follows.

(1.) Upper part, including the head, of a bearded figure, reclining in the manner usual to a sea or river god in ancient art, and having against the right shoulder a fragment of a reed or rush, probably held in the right hand, now lost. (Plate VIII.) The hair of both head and beard is long and flowing; the locks over the forehead are treated in a manner that a little suggests horns. The pupils of the eyes are worn, but appear to have been indicated by some not very deep mark. The material is white marble with bluish veins, of foreign origin; height 13 inches. The figure is explained by M. Cumont as that of Oceanus. I should prefer to consider it a river-god, and Professor Percy Gardner agrees with me. The water-reed seems decisive of the matter.

(2.) Headless figure, male, erect, draped from the waist downwards in common fashion, and also wearing part of a cloak (?) round the neck. In the right hand is a *patera* held over a burning altar, and a snake seems to encircle the wrist. The left hand holds up a well-filled cornucopia against the left shoulder. Near the left foot is a vessel's prow, and round it conventional indications of waves. (Plate IX.) The material is foreign white marble, the height 20 inches. M. Cumont, working from photographs, took the figure to be female, and explained it as a statuette of Fortune. It is, however, unquestionably male, and represents either a Genius or Bonus Eventus. Similar figures, with slight variations in the drapery and attributes, occur freely in most parts of the Roman Empire. Often, however, it is doubtful whether the piece denotes a Genius of some man or town or the like or the deity Bonus Eventus, and in the present case I do not know that it is possible to decide.

These two pieces of marble sculpture are well worth all attention. In their artistic excellence they far surpass the average of Romano-British work. The river-god, in particular, would take a high place, by whatever standard it were judged. The mild dignity which characterises the face and head is indicated with real effectiveness. The hair and beard, though treated somewhat plainly, are easy and free from any serious stiffness, and the modelling of the shoulder and breast

[a] Vol. vii. 816. [b] Vol. xlvii. (1890), 234.
[c] Brussels, 1896, ii. 160, 389.

show the true sculptor. The piece is, of course, in no sense a work of extraordinary genius. But it is a very excellent bit of art. The Bonus Eventus is more conventional. Yet here again the shape of the body is given with truth and grace; the pose is easy and natural; the drapery falls lightly, and the whole, when complete, must have been a very satisfactory work. Throughout, the subjects, details, and treatment of both pieces belong to the classical world, and, indeed, to the Greek rather than to the Roman or the Roman-provincial part of it. The head of the river-god is typical and not individualistic, and the body of Bonus Eventus, Italian deity though he was, may be also considered as sculptured under Greek rather than under specially Roman influence. In dealing with these two pieces we find ourselves therefore outside British or Roman traditions. Nothing in them suggests Late Celtic or Romano-British elements. We cannot even connect them with the highly civilised art of north-eastern Gaul which produced the sculptures of Igel and Neumagen. We must go not only to Italy but to that part of Roman art which was dominated by Greek ideas. Indeed, it is not improbable that they may have been wrought in Italy. The marble of which they are composed is not British, and may be Italian, and the excellence of their workmanship suggests, quite as strongly as the style, that their artist was not a Briton or a Gaul, but a Greek or an Italian. We may therefore count them among the objects of artistic merit that were imported in Roman days into Roman Britain. And we may suppose them to be not, like much good glass and pottery, imported from Gaul, but treasures brought over from the centre of Mediterranean civilisation.

(3.) The third piece belonging to Mr. Ransom is very different in character. It is a slab of white sandstone, 17 inches high, 21½ inches wide, and 3¼ inches thick, adorned with a representation of the Mithraic Sacrifice and appropriate adjuncts, and inscribed with the name of the man who set it up and his reason for so doing. (Plate X.) The Mithraic Sacrifice is a very good example of the ordinary type, well preserved and well executed, but in no way calling for particular comment. It depicts Mithras stabbing the bull with his right hand while he holds its nose with his left; below are the usual dog, snake (broken) and crab, and on each side a torch-bearer, the one with his torch erect and the other with it inverted. Round this central relief runs a circular band carved with the signs of the zodiac, also a common feature on Mithraic monuments. In the top left-hand corner the Sun (broken) is driving up a four-horse chariot, while in the corresponding right hand the Moon seems to direct downwards a car drawn by two oxen. At the bottom on the left is a male bearded head with two wings over the forehead, and on the right

STONE SLAB WITH THE MITHRAIC SACRIFICE, FOUND IN LONDON.

Published by the Society of Antiquaries of London, 1906.

a similar, but probably female, head, also with two wings on the forehead and flowing hair. Both doubtless, as M. Cumont observes, symbolise the Winds. Above and between the two heads is the inscription, in letters $\frac{7}{16}$ inch high:

VLPIVS SILVANUS, EMERITVS LEG. II. AVG. VOTVM SOLVIT. FACTVS ARAVSIONE.

"Ulpius Silvanus, discharged soldier of the Legio II. Augusta, pays his vow. He was discharged (*factus emeritus*) at Arausio."

The Legio II. Augusta, as is well known, was stationed at *Isca Silurum* (Caerleon) during the larger part of the Romano-British period. Ulpius seems to have been sent hence, possibly as *frumentarius* (despatch bearer), possibly on some other errand, and happened to be at *Arausio* (Orange), in the lower Rhone valley, perhaps on his way to or from Rome. Here he received news that he had obtained his release from military service; he then returned to Britain and set up a monument in London in thankfulness. This, which is in the main Mommsen's explanation of the inscription, seems to be the right one. The alternative suggestion that *factus Arausione* refers to the stone and means that the monument was carved at Orange, seems epigraphically far less likely and indeed is hardly possible. We should expect, in that view, neither *factus* nor the masculine gender, and we should be hard put to find a parallel inscription mentioning the place where a relief was worked. In these days of goods "made in Germany," and stamped thus by English law, such a notice may seem natural to English readers; but I doubt if an example can be quoted fom the monuments of Roman epigraphy. The only doubt that arises is whether it was the Emperor or Ulpius who was at Arausio when the discharge was granted. On this point I am content to accept the judgment of Mommsen in favour of the latter view. I do not know that any very decisive argument can be advanced on either side. We have, however, an Umbrian inscription of A.D. 141[a] in which a soldier is recorded as having obtained his promotion at Alexandria, where he was probably stationed.

The provenance of the sandstone on which the relief and inscription are carved is unfortunately uncertain. Mr. J. Allen Howe, curator of the Jermyn Street Geological Museum, writes that "such a sandstone might have come from the Wealden area, while, on the other hand, a rock which could not be distinguished from it might readily be found in the neighbourhood of Orange." It is therefore permissible to hold that the object was carved at the place where the discharge was received by the soldier, that is, at Orange, and was then brought to Britain. It is, however, far simpler to suppose that the block is local stone and the monument

[a] Hensen 7170 C.I.L. xi. 5694.

local British work, carved perhaps in London itself. Neither the quality of the carving nor the details included in it require us to assume any but a British origin.

The monument has a further interest. It is the only Mithraic monument yet discovered in London. This interest is the greater, since we can make some rough guess at its date and its position in Roman London. In respect of time, the name Ulpius and the forms of the letters agree in suggesting that the inscription dates from the second quarter or middle of the second century. In respect of place, the findspot seems significant. That is close to the ancient line of Walbrook, and it probably represents, at least roughly, the original situation of the monument. Mithraic chapels were regularly placed beside a spring or stream of water, and the Mithræum which contained Mr. Ransom's relief may well have stood close to the Walbrook.

Lastly, the question arises whether the two marble sculptures also belong to the Mithræum. As has been already stated, the circumstances of the discovery, so far as known to us, do not necessarily imply any connection between the pieces. The internal evidence is equally indecisive, or perhaps it is slightly adverse to the connection. Gods of the water and of springs were worshipped by the Mithraists, though only in a subordinate position, and a figure of a river-god might therefore not appear inappropriate. But no clear case occurs where such a figure as the one now under discussion has been found in a Mithræum. I can find only two instances in all M. Cumont's lists, and both of these are doubtful in the extreme.[a] Of a Genius or of Bonus Eventus I find no instance, certain or doubtful. It may be rash to assert that any combination of deities was impossible to Roman polytheism. But the combination implied in this case seems to be without proper parallel or precedent.

[a] i. figs. 345, 360.

IV.—*Excavations in an Anglo-Saxon Burial Ground at Mitcham, Surrey. By* Harold F. Bidder, *Esq.; with Notes on Crania and Bones found there by* W. L. H. Duckworth, *Esq., M.D., Sc.D.*

Read 30th November, 1905.

It is proposed in this paper to give some account of a burial ground of the early Anglo-Saxon period at Mitcham, at present partially excavated.

The finds of Anglo-Saxon remains in Surrey have so far been few, and the accounts of them meagre. Of those recorded the cemetery opened at Croydon during some road excavations in 1895 is the most important.[a] It may be noted that Croydon is at the head of a branch of the Wandle, which river flows close to the Mitcham ground. There are some points of resemblance between the finds on these two sites, although the burnt remains discovered at Croydon have no counterpart at Mitcham.

In 1871 a few Anglo-Saxon graves were found at Hackbridge, also on the Wandle, about two miles above Mitcham. They were situated at a point where the gravel rose above the surrounding meadows, and there were no surface indications of the burials, both characteristic features at Mitcham. Further remains were discovered in this area in 1874. Cremated burials formed a feature of these graves.

A number of graves were opened in 1871 at Farthingdown, near Coulsdon, five miles south by west of Croydon. These were dug in the chalk and marked by mounds, but otherwise they appear to have been of very similar character to the

[a] These particulars are taken from Mr. Reginald Smith's account of Anglo-Saxons in Surrey, in the *Victoria County History*.

Mitcham graves, both in orientation, absence of cremation, and scarcity of beads and other ornaments. They also afforded an example of double burial (two skeletons in one grave), several instances of which occur at Mitcham.

At Mitcham itself human remains with a few Anglo-Saxon objects have from time to time been discovered while working the gravel pits near Mitcham Station. Of these earlier finds, however, practically all details are wanting.

The field containing the burial ground now to be described (fig. 1) is bounded

Fig. 1. Site of an Anglo-Saxon burial ground at Mitcham, Surrey.

on one side by the Wandle. This river, which is of considerable volume, flows into the Thames at Wandsworth after a total course of barely eight miles. A low-lying stretch of marshy meadow leads from the river to the site of the graves, which are situated upon the top of a bank-like rise of about 6 feet in the level of the surface and of the gravel beneath.

That it has been possible to record these finds at all is due to a lucky accident. Nearly twenty years ago a gravel pit was sunk in the field by the late Mr. G. P.

PLAN OF ANGLO-SAXON CEMETERY, RAVENSBURY, MITCHAM, SURREY.

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Bidder, Q.C., the then owner of the Ravensbury Park Estate. The labourers at once came upon a number of skeletons; but thinking that (in the words of the bailiff) "people did not like to hear of such things" they said nothing about the matter; and it was only the chance discovery of a human bone by some members of Mr. Bidder's family two or three years later that led to investigation and scientific exploration. It is certain that the contents of a number of graves were dispersed.

Since that time excavation has been conducted at intervals by the late Mr. Bidder and his family, with the invaluable assistance and largely under the direction of Dr. Garson. In all some seventy-seven graves have been opened (see plan, Plate XI.), and their contents recorded. Some of the bones were submitted to Dr. Duckworth, of Jesus College, Cambridge, who has kindly supplied the results of his careful investigations.

The remains are found in the rich mould that covers the gravel, at a depth from the surface varying from 18 inches to 3 feet. In no case have any signs of a coffin been found. In some parts of the ground the skeletons are lying upon the gravel; the bones are then usually well preserved. In two cases slight excavations have been made in the gravel; but as a rule the gravediggers appear to have stopped on reaching a hard surface. In one region a chalky spring has left large deposits of a calcareous nature; where the bones are in contact with these they are much destroyed. There are no traces of any attempts to mark the graves by mounds or otherwise.

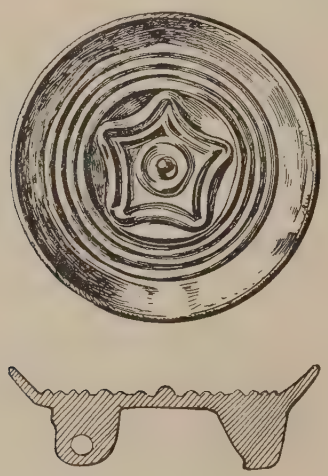
The bodies are for the most part well laid out and carefully orientated, with the head west. Of the thirty-three last excavated, only four were not so placed. Of these four one was a woman (north and south), and two were not adult. The remaining twenty-nine mostly pointed slightly to the north of true east. The direction from head to foot was accurately taken in seventeen cases, and gave an average direction of nearly eleven degrees north of true east, only three of the seventeen pointing to the south of east. Assuming that the east was taken from the position of the rising sun about the time of interment, the majority of these burials took place in the summer. It is suggested that there would be either more fighting or (the country being marshy) more disease at that time of year.

A knife is often found with the skeleton; frequently at the waist, as if carried on a belt. Where spear or javelin heads are found, they are mostly on a level with the skull on one side or the other. In one case a woman was buried with a spear-head at the knee, pointing to the feet. Only three swords have been found

(in each case accompanied by a shield-boss), and one instrument like a short sword that may be a sceptre of a rare but recognized type.

The ornaments recovered consist of eight bronze brooches (including two pairs), a bronze buckle, a bronze finger-ring, a few beads (amber and pottery), and the fittings of a belt. Four of the brooches are gilt. A number of iron buckles and other objects, a tumbler and vase of glass, and four earthenware jars complete the collection.

Mr. Reginald Smith has discussed these objects in an exhaustive and valuable paper,[a] to which reference should be made. The complete absence of animal motive in the designs leads him to assign the articles to the first half of the fifth century. The one buckle (fig. 5) in which animals' heads occur is borrowed from a late Roman form, as is also the incised scroll work of the brooches.



Fig, 2. Gilt bronze brooch. (½.)

Fig. 3. Gilt bronze brooch. (½.)

Mr. Reginald Smith considers that the general character of the finds points to a West Saxon rather than a Kentish origin, and is analogous to that of finds in the upper Thames Valley.

A remarkable feature has been the presence of a number of "stray" skulls, if one may so term them. In one case (No. 11) a warrior was buried with his spear beside him and a skull between his hands. In another case (No. 48) a skull

[a] *Proceedings of the Society of Antiquaries*, 2nd S. xxi. 4-10.

was laid across the ankles. The upper half of this skeleton was wanting, but it seems improbable that the skull was his own. Possibly these heads were trophies of war.

The following is a detailed list of the graves that call for special mention and their contents :[a]

No. 1. Iron strike-a-light and spear-head.

No. 2. Beads at neck.

No. 11. Under the left shoulder a circular bronze saucer-brooch, gilt, $1\frac{3}{4}$ inch in diameter (fig. 2); at the waist an iron buckle. Between the arms of this skeleton was a second skull.

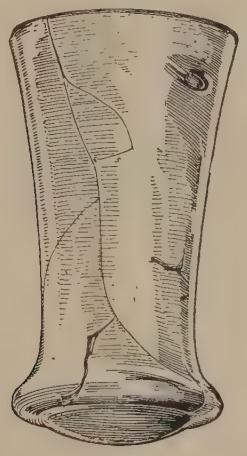


Fig. 4. Tumbler of blue glass. ($\frac{2}{3}$.)

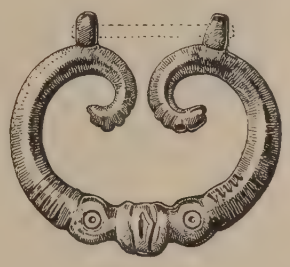


Fig. 5. Bronze buckle. ($\frac{1}{1}$.)

No. 16. On the right collar bone, a flat bronze brooch $1\frac{5}{16}$ inch in diameter, with stamped pattern. (Fig. 3.)

No. 17. Long iron spear on the left side of head, "stray" skull by left knee.

No. 18. A child.

No. 19. Spear on right side of head, knife by left arm, "stray" skull between knees.

No. 24. A knife.

No. 27. By the left side, a double-edged flat sword, with traces of the

[a] A selection of the articles found has been presented to the parish of Mitcham, and may be seen in the Vestry Hall there.

wooden scabbard, pommel level with the shoulder, length 33 inches, greatest breadth $1\frac{3}{4}$ inch. Over the head an iron shield-boss of the flat type, with iron hand-grip, diameter $6\frac{3}{4}$ inches. A spear-head to the left of the skull, and a knife at the left side.

No. 30. An iron ring $1\frac{1}{2}$ inch in diameter by the left forearm, some pieces of iron at the elbow.

No. 31. This skeleton was buried on its face, head to the north-west.

No. 34. The head of this skeleton lay on top of the right shoulder of 31. On the right of the head was a tumbler of pale blue glass $3\frac{7}{8}$ inches in height (fig. 4); on the left of the head a vase of olive-green glass, $2\frac{3}{4}$ inches in height and $3\frac{1}{4}$ inches in diameter. Some glass beads were at the neck.

No. 32. A spear to the right of the head, a knife by the left arm.

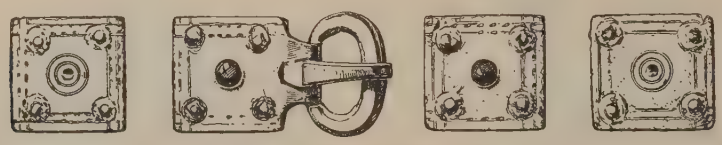


Fig. 6. Fittings of a belt. ($\frac{2}{3}$.)

No. 38. A small bronze finger-ring of Roman type, with a socket as if for a stone between two small plates; at the right thigh, a bronze buckle (fig. 5), $1\frac{3}{4}$ inch in greatest dimension, parallel to the hinge.

No. 42. A long spear to the right of the head. This skeleton lay with head east and feet west.

No. 43. A very large knife at the waist on the left side, point to the left. Direction, 16 degrees north of east.[a]

Nos. 44 and 45. These two skeletons had been buried in one grave, 44 on top. The lower skeleton was carefully laid out, feet to the west. At the waist were four tinned bronze plates, the fittings of a belt. (Fig. 6.) Each of these plates is about an inch square. The two middle ones have each a small jewel of red and yellow glass in the centre. At every corner is a stud encircled by a minute bronze ring. A shallow pattern is stamped round the plates. In the two side-plates (found on the hips) concentric circles take the place of the jewel. The

[a] The direction from head to foot is given in each case. The reference is to true east.

belt itself had perished, but its position was shown by a series of small bronze studs.

On the left collar bone was a cruciform brooch $2\frac{1}{2}$ inches in length, also of bronze, tinned, with a line of shallow stamping round the edge. (Fig. 7.) Behind the head was a comb of bone, with large teeth on one side and small teeth on the other.

Fig. 7. Bronze brooch. (½.)

No. 44 had been buried on its face, the legs being over the head and trunk of the lower skeleton. A few glass beads were at the neck (including two fine red ones with blue and white inlaid pattern), a small knife among the ribs, and a small iron buckle at the waist. Direction, 11 degrees north of east.

No. 46. A child, a yard north of 45; orientated.

No. 48. Skeleton of a man, lower half perfect, upper half represented by a few ribs and vertebræ. At the waist a small knife. On the right thigh a hook-like piece of iron. On the ankles a male skull, eyes downwards. Direction, 24 degrees south of east.

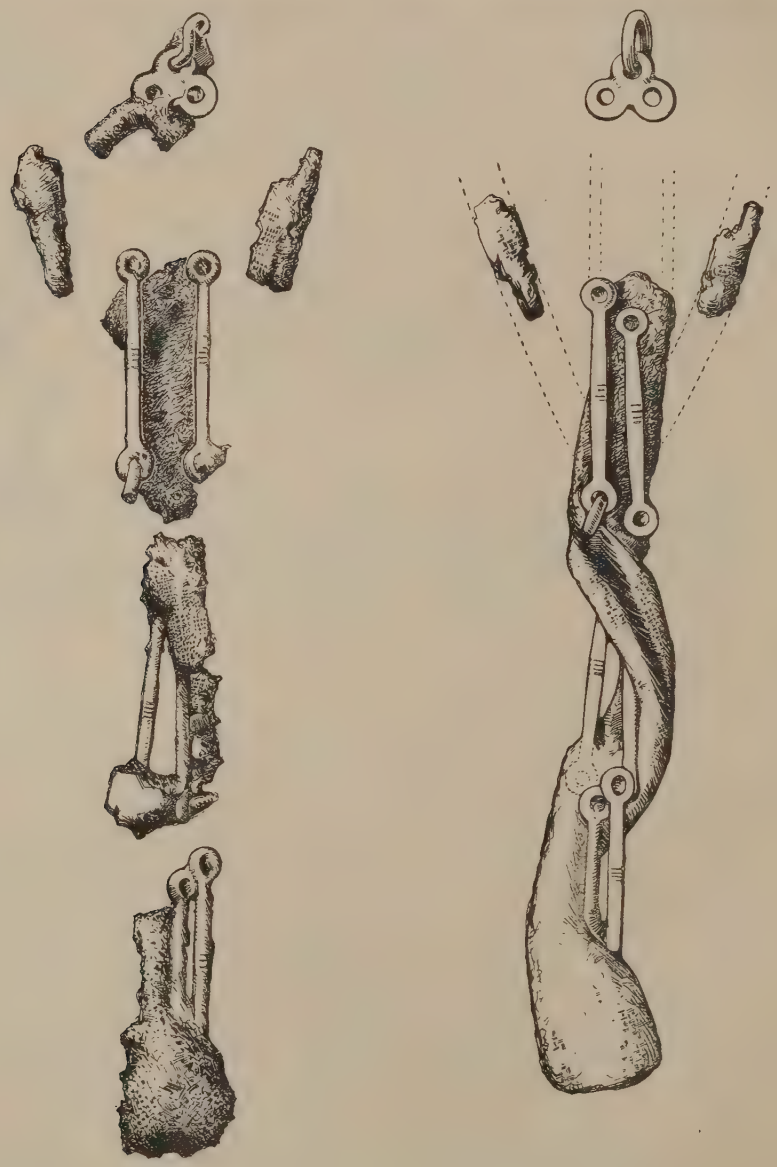
No. 49. The bones were very much perished. This perhaps was due to the exceptional fact that the grave had been dug down into the gravel for about 4 inches.

Fig. 8. Iron sword or sceptre. (¼.)

By the left side was an iron object like a short sword (fig. 8), $22\frac{3}{8}$ inches in length, thickening towards the point, which has been classed as a sceptre or badge of office of a type rare but well recognised.[a] This instrument was pointing towards the feet, the hilt level with the waist. At the waist and on the left thigh were a number of iron objects, apparently the fittings and contents of a belt and pouch. Most of these pieces of iron showed traces of cloth adhering to them. In the "pouch" were, among other implements, an iron key and ring.

A curious ornament lay between the legs, and appeared to have hung down below the knees. (Fig. 9 (i).) It consisted of three pairs of bronze rods, each 2 inches in length, wound round with a strip of material, and hanging from a small triangular plate of

[a] See *Proceedings*, *loc. cit.* 6.



(i) As found, except that the three main sections were in contact.

(ii) Suggested partial restoration.

Fig. 9. Portions of a bronze ornament found in Grave 49.

bronze, with eyelet holes for attachment to the garment. These rods were not connected, and were perhaps sewn on to the material. The latter was in several layers, including one of a canvas-like texture. The pad at the lower end suggested a leathern surface. Small pieces of iron covered with material appeared to have formed side attachments.

Across the left knee was an earthenware urn, 6 inches high and $4\frac{1}{8}$ inches across the mouth. (Fig. 10.) This bowl has a pattern round it of parallel lines. It does not appear to be wheel-made, and consists of a coarse grey paste. The sides are relieved by six vertical ribs formed by running the finger down the inside of the bowl. The bowl contained nothing but mould.

Fig. 10. Earthenware urn. ($\frac{1}{2}$.)

Below the feet was a small bronze rod, somewhat similar to those above described, and a small bar of iron with a slit in it. A pair of iron objects were also found (one lying against the left heel bone, across and under the heel), each consisting of a small iron rod about 2 inches in length, passing through an iron ring and ending in a flattened plate. They were possibly the fastenings of a box, though the position of one of them suggests a kind of spur.

Direction: 16 degrees north of east.

No. 50. Very fragmentary, close to 49, and also some 4 inches down into the gravel. A pair of spear-heads at the left shoulder, and a large knife at the waist. On the right hip, a graceful bronze buckle, $1\frac{7}{8}$ inch in length. (Fig. 11.) The skull had a hole in it of the size of a florin. Direction: 4 degrees south of east.

Fig. 11. Bronze buckle, with piece of material adhering. ($\frac{1}{1}$.)

No. 51. Skeleton, probably female. A small piece of iron underneath and across the left thigh bone, closely touching it. Direction: 26 degrees north of east.

No. 52. Child. Direction: 24 degrees south of east.

No. 54. Skeleton of a man. Bones well preserved, but no trace of a skull. Spear at left shoulder. Direction: 23 degrees north of east.

No. 57. A youth under eighteen. In the mould near was found a small coin of Constantius II. (minimus), 337-361 A.D., in good preservation. Direction: 21 degrees north of east.

No. 58. Skeleton, probably female. A spear-head at the right knee pointing to the feet. Direction: 8 degrees north of east.

Nos. 59 and 60. Only the skull and legs of No. 59 remained, the legs pointing to the east. No. 60 was complete, with legs pointing about north by east, and head where the ribs of No. 59 should have been. A spear-head was at the left side under the arm. It seemed clear that the burial of No. 60 had taken place after that of No. 61, so that the orientation does not indicate a later period.

No. 61. An incomplete skeleton, probably male, consisting only of the bones of one leg and the collar bones. Direction easterly. A very beautiful bronze saucer-brooch, $1\frac{3}{8}$ inch in diameter, richly plated with gold, was found in the earth above it. The pattern was similar to that shown in fig. 12, but contained ten scrolls instead of five, and had not the rope-like circle and the five bosses of fig. 12. On each collar-bone was a large circular brooch of the applied type, consisting of a plain thin bronze back, $2\frac{1}{4}$ inches in diameter, and a loose rim that had kept in position a thin plate of metal (not gold) with an embossed pattern, portions of which were found. At the waist was a large iron buckle.

No. 62. Thirty-nine beads were found along the vertebræ of this skeleton on the right side. These beads include several large ones of red amber, a number made of paste with a variety of designs in colour, and a few of blue glass, veined in two cases with red.

No. 63. The complete skeleton of a man of fine stature. On the right of the skull was a large spear-head which had been wrapped in a canvas-like material. Among the ribs was a small knife in a sheath. Direction: 16 degrees north of east.

No. 64. A small woman carelessly thrown in on her face, with knees bent. She lay north and south between Nos. 63 and 65.

No. 65. A very tall and muscular man. The skeleton appeared to have been disturbed in early days. The bones, though all present, were displaced on the left side, the thigh bone being on the chest and some vertebræ at the neck. Across the body was a large sword (probably shifted from its original position), beneath which were the bones of a small dog. The sword was $35\frac{1}{4}$ inches in length, double edged, with greatest breadth of $1\frac{7}{8}$ inch. Much of the wooden scabbard remained; a thin rectangular iron plate was inserted in the scabbard at the hilt end, perhaps to save friction, or to act as a catch.

A shield-boss of the flat type, 6 inches broad and 3 inches high, was at the

right knee, but had probably come from the shoulder, as a shoulder blade was beneath it. A small knife was among the ribs, and a spear-head by the left arm. It is interesting to note that the disturbers of the grave did not remove the sword. Direction: 24 degrees north of east.

No. 66. The skeleton of a young female. A pair of gilt saucer-brooches $1\frac{5}{16}$ inch in diameter were at the waist (fig. 12), one on the left hip, the other in the mould near. Close by was the skeleton of a child. Direction: 18 degrees north of east.

Fig. 12. Gilt bronze brooch. (½.)

Nos. 69 and 70. These were in the same grave, the remains being very fragmentary; No. 70 was above and slightly across No. 69. The bones of No. 70 were slight, suggesting those of a woman, while those of No. 69 were of a good size.

At the foot of No. 69 was an earthenware jar of coarse red paste, wheel-made, $4\frac{3}{4}$ inches high and $5\frac{1}{8}$ inches across the mouth, with a rough pattern of parallel lines round the shoulder. Within this was a smaller vase, $2\frac{5}{8}$ inches high, of fine black paste, without ornament. There was no trace of the contents of either. Beneath the larger jar was an iron knife.

The smaller jar is similar to one of larger size found not far from this grave, but unconnected with any burial. In both cases the workmanship suggests Roman pottery. Direction of No. 69: 16 degrees north of east.

No. 71. Direction: 16 degrees north of east.

No. 72. Skeleton of a young person buried with the knees doubled up towards the chest, lying on the right side. The general direction was east-north-east.

No. 73. Fine skeleton of a man, quite complete. Along the left arm was a large sword, $35\frac{5}{8}$ inches in length, and with a greatest breadth of $2\frac{1}{2}$ inches. Parts of the wooden scabbard adhered to it. The tang of the sword (which was level with the jaw) was of unusal shape, the extremity being bent over at right angles to the axis of the sword in the plane of the blade. A fine spear-head lay to the right of the head. At the waist was a knife (on the left) and a buckle (on the right). This buckle was of the type shown in fig. 11, but made of iron, much corroded. A thin plate of iron filled the triangular space. The studs, however, were of bronze. At the right shin was a shield-boss of a conical type, $3\frac{1}{4}$ inches in height, $4\frac{3}{4}$ inches in breadth, with iron hand-grip. An iron ring, $2\frac{1}{8}$ inches in diameter, was found in the mould above the skeleton. Direction: due east.

No. 74. Fragmentary. Direction: 16 degrees north of east.

No. 75. A young person. A small knife was at the waist on the left; the right hand was under the face. Direction: north-east by north.

No. 76. Fragmentary. Perhaps a woman. Direction: about north-east by east.

Note on a Collection of Crania and Bones from Mitcham.

By Dr. W. L. H. Duckworth.

Series No. 1.

The remains of several skeletons are intermingled in this collection. By careful sorting I have made out the following points.

There are crania, more or less fragmentary, of four individuals; pelvic remains of four individuals; femora from five; humeri from five; radii from four; ulnæ from four; tibiæ from two; fibulæ from one. These results may be tabulated thus:

Crania	from 4 individuals.	
Pelves	„ 4 individuals.	
Femora	„	5 individuals.
Humeri	„	
Radii	„	4 individuals; of which 3 radii and 3 ulnæ go together in pairs.
Ulnæ	„	
Tibiæ	„ 2 individuals; one pair belonging to the fibulæ.	
Fibulæ	„ 1 individual.	

The remains belong to persons of tall stature and powerful physique, ranging in stature from 1,668 to 1,736 mm. for the males.[a] They thus resemble the remains attributed to Teutonic invaders of Britain, but whether Angle or Saxon it is impossible to say. The crania are too few to base a very definite statement upon, but the range in form is rather remarkable; the cranium providing definitely brachycephalic proportions has been pieced together, and its imperfection, besides rendering an accurate measurement unattainable, is largely accountable for this unusually high figure for the index (cephalic). Otherwise the statement first made requires no qualification. The tall stature and the massive character

[a] The equivalents (in feet and inches) of the shortest and tallest individuals found up to the present at Mitcham are 4 feet 10½ inches and 6 feet respectively. The shortest was a female. The males in Series 1 range from 5 feet 5 inches to 5 feet 8½ inches.

of the bones suggests that these are more probably Saxon or Anglian remains than those of British inhabitants of the locality in which they were found.

Notes on the several specimens follow.

CRANIA:

No. 4,700.[a]—A cranium with the mandible, in good preservation. The individual was probably between 25 and 30 years of age. The sex must remain doubtful, but I believe it to be female. The skull is ovoid and mesaticephalic, the face is long and narrow, the teeth rather prominent in the incisor region but otherwise absolutely perfect in form and regularity. The chin is very prominent. With this cranium I am inclined to associate the bones marked ? 4,700, which provide a probable stature of 1,613 mm.

No. 4,701.—The calvaria of an individual of about 50 years of age and of the male sex; the mandible is fragmentary. The calvaria is broad (just brachycephalic), and so was probably the face. The remaining teeth are large and of good quality. With this specimen I am inclined to associate the limb-bones marked ? 4,701, denoting moderate stature (1,668 mm.), but great strength and robustness.

No. 4,702.—The left half of the cranium and of the face and part of the mandible of a man in the prime of life. This is a long narrow skull (the estimate of width is almost certainly too great) of great dimensions, and resembles specimens described as Anglian in origin. The face is large and rather narrow, with prominent jaws. The teeth are large and of good quality. With this specimen I would associate the long femora, one of which measures 491 mm. in length, and provides a probable stature of about 1,736 mm.

No. 4,703.—The calvaria of a man of greater age than the foregoing. It is long and narrow with prominent brow-ridges. In type it accords with Nos. 4,700 and 4,702. None of the limb-bones, etc. can be definitely associated with it.

OTHER PARTS OF THE SKELETON.

A.—Fragments marked ? 4,700, viz. right humerus, left radius, ulna, and clavicle. The bones are slight and short and probably female. The clavicle and ulna are stained with copper, indicative of bronze ornaments. The proportion of forearm to arm is not distinctively feminine.

B.—The fragments marked ? 4,701, viz. the right and left radius and ulna, femur, tibia, and fibula, also the sacrum and the ossa innominata. They are very stout massive bones, much ridged, and the femora are strongly curved. There is no suggestion of rickets. The left radius has been fractured, and repaired naturally.

C.—A sacrum and innominate bones, apparently of a female.

D.—Two very long femora, one (the right) being incomplete. The latter has sustained in life a fracture of the great trochanter, followed by natural repair.

[a] The numbers are those of the Cambridge Register or Catalogue.

E.—A left radius, not associated with other bones, has also been fractured during the life of the individual, and has been naturally repaired. In the case of this and the other fractured radius, shortening has occurred, but not in the case of the fractured trochanter (cf. D). No platycnemic tibiæ occur.

Some measurements are appended.

MEASUREMENTS.

Skulls:

Number	4700	4701	4702	4703	Facial height	73	—	77	—
Length	174	179	190	? 164	Facial breadth	110	—	118	—
Breadth	135	151	? 164	138	Nasal height	52	—	54	—
Height	126	—	? 138	—	Nasal width	24	—	21	—
Circumference	503	? 520	544	? 535	Mandibular width	96	—	114	—
Basi-nasal length	90	—	100	—	Cephalic index	77·5	80	? 86	72
Basi-alveolar length	91	—	100	—					

Other parts of the skeleton:

A. ? 4700—Humeri, R. 331; L. 320. Ulna, L. 250. Radio-humeral index, 78·1.

B. ? 4701—Radius, R. 276. Ulna, L. 294.
Femur, R. 434; L. 429.
Tibia, R. 349; L. 353.
Fibula, R. 336; L. 342.
Pelvic brim—transverse diameter, 99.
conjugate diameter, 122.
index, 81.
Sacral length, 100.
Sacral breadth, 113.
Sacral index, 113.
Estimated stature, 1,668.

C. Sacrum, length 106, breadth 120; index, 113; Pelvic brim; transverse diameter, 144.

D. Femur, L. 491.

E. Other bones.—Humeri, R. 339; L. 312.
Radius, R. 243.
Ulnæ, R. 262; R. 266.
Femora, R. 434; L. 443.
Tibia, R. 350.
Sacrum, width, 126.

In Class E the bones are not associated with one another.

Several fragmentary bones were not measured.

Series No. 2.

A.—Portions of five crania.

B.—Portions of five mandibles, and one upper jaw.

C.—Fragment of a left scapula, which belonged to a robust adult male.

A. Crania:

No. 1.—Cranium of an adult male, probably past the prime of life. The widespread synostosis of the cranial bones is indicative of advancing age. On the left parietal bone is an extensive depression, in the centre of which the surface of the bone is somewhat roughened as though inflammation had been chronic. It is practically impossible to say whether this depression is the result of a wound from which recovery had occurred, or, on the other hand, the sequel to chronic inflammation consequent on the presence and growth of a wen or sebaceous tumour. The right side of the cranium is imperfect owing to damage received during exhumation. The interior of the cranium is fully synostosed; pacchionian pits are numerous and large, and at the occiput is the curious endo-cranial depression associated with peculiar brain-characters.[a] This is the best preserved cranium. From the condition of the bone the antiquity of the specimen is not judged to be extreme. The cranium is like those of the Romano-British inhabitants of this country as represented by crania from various localities in the neighbourhood of Cambridge, now in the University Anatomical Museum.

Measurements: maximum length, 186; maximum breadth, 143 (?); basal height, 132; basi-nasal length, 104; basi-alveolar length, 97; cephalic index, (?) 76·9; height index, 71; alveolar index, 93·3.

No. 2.—This is an elongated ovoid cranium of an individual advanced in years and probably of the female sex. The facial skeleton has been destroyed. In texture this specimen resembles No. 1. There are some features, especially the massive occipital torus, suggestive of a male skull, but in view of the age of the individual the decision is as given above. Synostosis of the bones of the cranial vault is almost complete, both endocranially and exocranially, only the temporal bones remaining separate. Along the hinder part of the sagittal suture a band of flattening is seen, and below this there is a protrusion of the occipital end of the skull similar to that seen in many of the Saxon crania from Brandon (now in the University collection, and described by Dr. C. S. Myers in the *Journal of the Anthropological Institute* for 1896). This specimen can thus be easily matched among the crania of the Saxon period now in the Cambridge collection.

Measurements: length, 183; breadth, 135; cephalic index, 73·8.

[a] Cf. Elliott Smith, *Proceedings of the British Association for the Advancement of Science*, Cambridge, 1904, Section H.

No. 3.—This is a large obovate cranium of an individual in the prime of life, and probably of the male sex. The facial skeleton has been destroyed, with the exception of the nasal bones. Brow ridges are not very prominent, but the occipital bulging already noticed as a feature of No. 2 is here very distinct. In general characters this specimen agrees with the two preceding examples, and is probably of contemporaneous age and similar provenance. The chief point of difference consists in the greater development of the frontal region of the skull, especially as denoted by its breadth.

Measurements : length, 186 ; breadth, 145 ; cephalic index, 78·0.

No. 4.—The frontal bone and left parietal bone of an adult male individual. The state of preservation is similar to that of Nos. 1, 2, and 3, and the cranium seems to have presented the same proportions, that is, of moderate (relative) length. No measurements are recorded.

No. 4A.—Part of the hinder end of a large (probably male) adult cranium. This fragment consists of the right half of the occipital bone, with the adjoining part of the right parietal bone, and part of the left parietal bone. In preservation this specimen seems more weathered, and has probably therefore been more exposed than the previous examples (1-4 inclusive).

No. 5.—Portions of the calvaria of an individual of mature age. Synostosis of the bones has been extensive. The sex is difficult to determine, but appears to have been male. This is a much broader cranium than any of the preceding. Otherwise the state of preservation resembles that of Nos. 1-4 (inclusive). The occipital bulging already noted is very marked in this specimen, and the endocranial occipital cerebral fossa on the left side is as marked as in No. 1.

Measurements : length, 178 ; breadth, 153 (?) ; cephalic index, (?) 86·0.

B.—Mandibles :

No. 6.—This specimen is in two fragments. It seems to have belonged to Skull No. 1. Two molar teeth have been lost (*intra vitam*) on the right side, and one on the left. The upper jaw (of No. 1) shows signs of caries and dental abscesses.

No. 7.—A mandible with remarkably prominent chin, probably female. Crowding of the incisor teeth is noticeable. The mandible is imperfect, the right ascending ramus and condyle being absent.

No. 8.—A small mandible (probably of a female). The molar teeth have suffered much from decay and from alveolar abscesses. It is practically impossible to refer this definitely to any particular cranium of this series. The same remark applies to the remaining two examples.

No. 9.—Well-formed mandible with well-preserved teeth of an adult. Most probably this is the jaw belonging to Cranium No. 3.

No. 10.—Upper maxilla and right half of the corresponding mandible. These are from a

young individual, are well preserved and are remarkably well formed with large sound teeth. The wisdom teeth have only just been cut. As regards the state of preservation, these specimens are much more perfect than the remainder of the mandibles described.

C. The Scapula.

This needs no further description.

Series No. 3.[a]

The present series comprises remains (more or less complete and perfect) of fourteen human skeletons of varying ages and both sexes. The general appearance corresponds with that of skeletons which have been obtained previously, as in Series No. 1, at Mitcham, as well as those discovered locally in cemeteries supposed to date from the Saxon period in East Anglia, but there is some difficulty in determining by the skeletons alone the exact antiquity of the specimens. The occurrence among these skeletons of individuals of powerful physique and tall stature (one measured 6 feet and two were over 5 feet 8 inches) is against their identification with the so-called Romano-British inhabitants of this country. On the other hand, the cranial proportions, though on the average distinctly dolichocephalic, are remarkably varied, considering the small number of the individuals represented. On the whole, however, these may be provisionally described as Anglo-Saxon remains. The circumstances attending interment will possess great importance as regards confirmation or refutation of the above view.

The following notes deal with the osteological features of each skeleton, whether complete or not; and tables (I. and II.) of such measurements as could be made are also appended.

(?) No. —The hind part of a large male skull. The individual was apparently robust. The mandible is massive, and bears large well-formed and well-preserved teeth. The cranium is of mean proportions between the dolichocephalic and brachycephalic groups. Its chief characteristic is the massiveness to which allusion has been made already. No other parts of the skeleton accompany this skull.

No. 48.—The large massive cranium of a man far advanced in years. Dental abscesses have left traces in the jaw, and the remaining molar teeth are much worn. Cranial synostosis is extensive. The skull is chiefly characterised by its great size, by bulging of the occipital region (similar to that mentioned in the descriptions of the Mitcham Series No. 2), while the face has a remarkably orthognathous or straight profile.

Other parts of the skeleton confirm the view expressed above as to the powerful physique of this man. The other remains comprise portions of the sacrum, ossa innominata, and right scapula; the right astragalus and os calcis

[a] The numbers by which the specimens in this series are indicated are also those of the graves given above.

and one lumbar vertebra; both femora and tibiæ, the right humerus, ulna, and fibula. The femora are platymeric.

The stature is estimated at 1,677 mm.

No. 51. Fragments of the skeleton of an immature individual; the sex is uncertain, but probably female. No measurements of the cranium were obtainable. The basilar suture is open and the wisdom teeth had not been cut. The other bones of the skeleton are for the most part fragmentary, and comprise portions of the right innominate bone, atlas vertebra, the femora and tibiæ, the right humerus (with a perforated olecranon fossa) and radius; and the left fibula, which is nearly perfect.

The bones are slight and small.

Estimated stature 1,487 mm.

No. 52.—Fragments of the cranium as well as of the two femora and other limb-bones of a child of uncertain sex and age.

No. 54.—No skull accompanies these bones, which appear to have formed part of the skeleton of an adult male of powerful physique, as indicated by the outstanding "muscular" ridges on the limb-bones. The vertebræ show evidence of osteo-arthritis, for the appearance known as "lipping" is observed. The left humerus bears a well-developed supra-condylar spur, an interesting anomaly, but of no racial significance however. The soleal line on the tibiæ is particularly prominent. The remains comprise either the whole or parts of several vertebræ, the sacrum, the ossa innominata, right clavicle, left scapula, right humerus, the radii, ulnæ, femora, tibiæ and fibulæ, right scaphoid (hand) and unciform, several phalanges (hand), one metacarpal bone, the left astragalus and os calcis.

Estimated stature 1,717 mm.

No. 55.—The stout massive tibiæ of an adult, probably a male.

Estimated stature 1,613 mm.

No. 57.—Fragments of mandible and various bones of an immature individual. The stoutness of the limb-bones suggests the male sex. The wisdom teeth had not been cut. No measurements were possible. The fragments comprise portions of the mandible, right humerus and radius, and right and left femora.

No. 58.—Fragments of the skeleton of an adult of indeterminate sex, probably female. The mandible presents feminine characters; on the other hand, the brow-ridges are pronounced and prominent to an extent rare in female crania. The limb-bones are slight and therefore feminine. The skeleton is represented (in addition to the skull) by fragments of the humeri, femora, tibiæ, and fibulæ, with the metatarsal bone of the (?) left hallux.

The olecranon fossa is perforate in each humerus.

The right femur and tibia are the stoutest bones.

Estimated stature 1,573 mm.

No. 60.—The skull, mandible, and other skeletal remains of an immature individual, probably a male. The wisdom teeth have not been cut. The other teeth are large, well formed, and well preserved. The chin is very prominent. The skull is very long and narrow, and has been probably deformed by flattening from side to side. This deformation is almost certainly posthumous, and due to the pressure of soil. The limb-bones are feebly marked; they lack the epiphyseal ends in most cases. Parts are thus present of the left femur, and of both humeri, tibiæ and fibulæ.

Estimated stature 1,594 mm.

No. 61.—The left femur and tibia of an adult; the sex is probably male, as indicated by the stoutness of the bones. The femoral shaft bears signs of inflammation (periostitis).

Estimated stature 1,677 mm.

No. 63.—The skeleton of an adult male, not far advanced in years, although cranial synostosis is extensive; but the teeth are not much worn down. The skull is massive, large and rounded, the face and occiput being imperfect or absent. The mandible is very wide. The brow ridges and mastoid processes are particularly large. The limb-bones bear well-defined ridges denoting the powerful build of this man. The femora are slightly platymeric as in so many Anglo-Saxon skeletons. The bones comprise the right femur and both tibiæ.

Estimated stature 1,722 mm.

No. 64.—Portions of the femora, tibiæ, one fibula, right radius, right ulna, scapulæ, and skull, with two lumbar vertebræ, the left humerus and radius, and one knee-cap of an adult female.

Estimated stature 1,522 mm.

No. 65.—The femora, tibiæ, humeri, ulnæ, and left radius of a very tall and muscular man.

Estimated stature 1,827 mm. (by far the greatest of these skeletons).

No. 66.—(A) The left half of the mandible of a child of about six years of age.

(B) Skeletal remains of a young female. The cranium is long and narrow, and at its occipital end bears distinctively feminine characters; occipital bulging is also marked. Some posthumous deformation has occurred, and this increases the apparent length and narrowness. The remaining teeth are large and well formed. The other remains comprise the left ulna, femur, tibia, and fibula.

Estimated stature (B.) 1,585 mm.

TABLE I.

CRANIAL MEASUREMENTS AND INDICES.

No.	Length.	Breadth.	Height.	Basi-nasal length.	Basi-alveolar length.	INDICES.		
						Breadth.	Height.	Alveolar.
48	204	144	137	110	103	70·4	67·2	93·6
60	187	128	—	—	—	68·4	—	—
63	(?) 195	151	—	—	—	(?) 77·4	—	—
66	191	122	132	100	100	63·9	69·1	100

TABLE II.

MEASUREMENT OF LIMB-BONES AND ESTIMATED STATURE.[a]

Number of Skeleton.		Right Humerus.	Left Humerus.	Right Radius.	Left Radius.	Right Ulna.	Left Ulna.	Right Femur.	Left Femur.	Right Tibia.	Left Tibia.	Right Fibula.	Left Fibula.	Stature (mean).[b]
(?) 48.	♂	336	—	—	—	—	—	455	461	370	376	358	—	1,677
51.	♀	—	—	—	—	—	—	(?) 390	—	—	—	—	—	1,487
54.	♂	—	345	260	—	290	289	473	475	374	373	—	—	1,717
55.	♂	—	—	—	—	—	—	—	—	—	390	—	—	1,613
58.	♀	—	—	—	—	—	—	—	—	351	350	—	—	1,573
60.	♂	—	—	—	—	—	—	—	421	—	—	—	—	1,594
61.	♂	—	—	—	—	—	—	—	—	—	375	—	—	1,677
63.	♂	—	—	—	—	—	—	484	—	387	—	—	—	1,722
64.	♀	—	285	—	217	—	—	—	417	—	—	—	—	1,522
65.	♂	389	384	—	281	306	—	527	520	428	430	—	—	1,827
66. (B)	♀	—	—	—	—	—	(?) 242	—	—	—	356	—	—	1,585

[a] See footnote on p. 12.

[b] The mean of the values calculated from the several bones by Pearson's formulæ.

V.— *Pre-Roman Bronze Votive Offerings from Despeñaperros, in the Sierra Morena, Spain.* *By* Horace Sandars, *Esq.*, *F.S.A.*

Read 8th March, 1906.

Before entering upon the consideration of the subject matter of this paper, I would mention that I found some difficulty in selecting an appropriate title for it. It appeared to me that although a generally descriptive title, perforce composed of several long names strung together, or of compound adjectives made up of such words as Greek, Phœnician, and Iberian, would be more correct, it might, at the same time, and without some previous knowledge of the subjects dealt in during the course of the paper, prove to be confusing. I hesitated between "Iberian" and "Pre-Roman." I think that "Iberian" would, in some respects, have been a more appropriate title, because Iberian influences, both in a geographical and an ethnical sense, undoubtedly predominate, not only in the votive objects themselves, but also in other expressions of that phrase in art with which I am about to deal. "Iberian" is, however, so often and so loosely employed to denote anything and everything that comes from *Hispania*, that I finally decided upon "Pre-Roman." It should, however, not be taken in this instance as the chronological definition of a period which ends with the Roman occupation of Spain in 200 B.C., because it may, and undoubtedly does, extend into several subsequent centuries; but rather as indicating that the influences which predominated in the inception of the offerings in no way derive from the Romans, and that they are traceable to pre-Roman times in the Peninsula.

When I had the privilege of reading a paper before the Society on Roman mining operations in Baetica on the 9th March, 1905, just a year ago, I dealt

generally with that province, the modern Andalusia, and traversed it from north to south, and from east to west. To that province I now return; but only to one small point in it, to a spot not far from, and to the north of, Cástulo, the important Carthaginian and Roman city which stood at the head of the valley of the Baetis, to a spot which is situated in the most romantic part of the Sierra Morena, where a river has cut a deep gorge through the quartzite rocks, and where the Spanish brigand of reality, and not only of romance, held sway until the middle decades of the last century. It is near the *Saltus Castulonensis* in the *Mariani Montes* of the Romans, and it is known to-day as "Despeñaperros," the literal rendering of which would be "fling-the-dogs-over-the-precipice." Here, about half way up the southern slopes of one of the highest of the mountains in this part of the Sierra (it rises 3,000 feet above the level of the sea), which is known as the "Cerro del Castillo" (the Castle Hill), and at a point where, with a steep descent on the one side, the bare face of the mountain rises sheer some 200 feet above on the other, there must have been an ancient and much revered sanctuary or shrine; and it is here that the votive offerings which I deal with were found. But in order to reach the spot with the intelligence requisite for the proper appreciation of the importance of the finds and their archæological significance in all its bearings it will be necessary to pass to that part of the Peninsula where the blue waves of the Mediterranean lap the western shores of the *Mare Internum*, and where the bold adventurers from Greece and Phœnicia first set foot on Iberian soil, and where they subsequently occupied and colonized well-defined zones. The Greeks, who began to settle in the north at Massilia, trended south; while the Phœnicians, who began in the south at Gades, trended north. There is no evidence that either nation penetrated far inland (except, perhaps, in the case of the Phœnicians who pushed up the valley of the Baetis), but they must both have made their civilising influence felt by the Iberians with whom they came into more immediate contact; and that they inspired them with their ideas in art and impressed upon them that degree of culture which is represented by the faithful reproduction of the human form, and which enables the originator to give expression in the works he produces to the sentiments of respect for religion and truth which inspired their inception, there can, I consider, be no possible doubt.

I have had a map of Iberia (fig. 1) specially prepared for the better understanding of this portion of my paper. It is somewhat of the composite order, as it shows not only the Greek and Phœnician Colonies to which I have referred, but also the

geographical position of the various Iberian or Celtiberian tribes, the Roman divisions of the country, the principal Roman towns, and the main Roman roads. I have marked the names of the Greek colonies with a double line thus =, and those of the Phœnician colonies with a single "hatched" line thus //////// under the names. The Roman names have, in most cases, no direct bearing upon the subject matter of my paper, but most of them will be familiar and easily recognised.

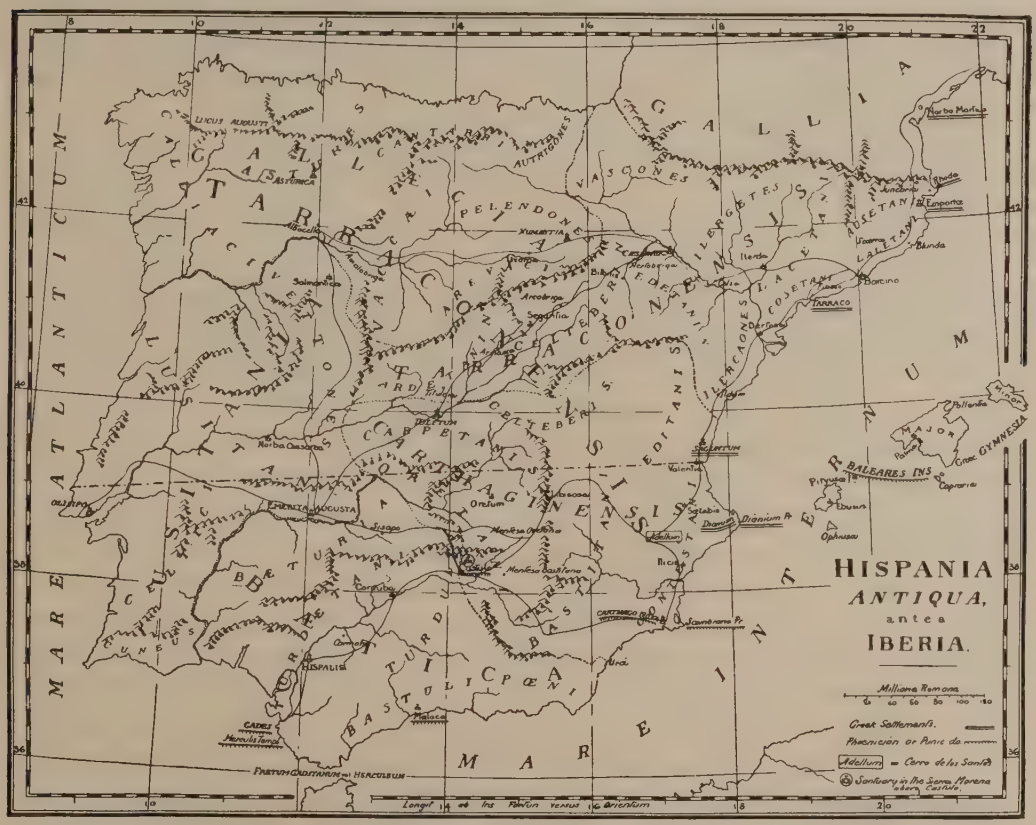


Fig. 1. Map of Iberia.

Before considering the map, however, I would mention that the words "Greek" and "Phœnician" are used as generic terms and as covering all Greek Settlements whether founded by Rhodian, Phocœan, or other Greeks, and all settlements of Syrian origin, whether founded by Phœnicians or Carthaginians. It would be little to my purpose to go closely into the question as to when the

Greeks and Phœnicians first settled in Spain, or as to how far, and when, they respectively penetrated into each other's territories. It is quite possible that there was a flux and reflux of penetration during the earlier centuries of their occupation; and it is historically probable that the Greeks took advantage of Tyrian troubles when Tyre was destroyed in about 585 B.C. to push south as far as Malaga, and that they temporarily founded a settlement (Maenaca) in that neighbourhood. It is also probable that the Carthaginians, after they had inflicted a severe blow upon Greek prestige and expansion in the Mediterranean by their naval victory off Alalia, in Corsica, in 535 B.C., occupied the eastern coast of Iberia; but be that as it may, the point I desire to call attention to is that there was a territory, or perhaps only a district, lying between the Greek colonies along the north and north-east coasts, and the Phœnician colonies on the south and south-east coasts, where there appears to have been a blending of the elements in art of the two nations, and where the indigenous Iberian population absorbed and perpetuated those elements and gave them expression in the statues and offerings which I am about to consider. The map shows that between the Greek colonies of Narbo Martius, Rhoda, Emporiæ, Iluro, Tarraco, Saguntum and Dianium, and the Phœnician settlements of Gades, Malaca, Urci and Cartagena, there is a place marked Adellum. It is in the district I refer to. Elo was a station on the great Roman highway, the Via Augusta, between Cadiz and Rome; it is mentioned in the Antonine Itinerary, and it lies close to Yecla, a name which will be found in modern maps. In its near neighbourhood there is a low, flat-topped hill which has become celebrated in archæology under the name of the "Cerro de los Santos," or "Hill of the Saints," where a very considerable number of statues have been found, to which many of the bronze statuettes from the sanctuary at Despeñaperros, the site of which is marked above Cástulo, bear a close analogy.

On the northern brow of the Cerro de los Santos plateau there stood, as the plan given in fig. 2 will show, a temple, or sanctuary, from which those statues must have proceeded. It was built of large rectangular blocks of fine grained limestone, some of which measured 7 feet in length, set without mortar, and so accurately faced that the joints could with difficulty be distinguished. The front of the temple was almost due east, and its dimensions were (on the outside of the walls, which were about 3 feet 3 inches thick, and could be quite accurately measured, although there was unfortunately only one course of stone blocks left), in length 51 feet, and in width 22 feet 7 inches. A portico, or *pronaos*, 8 feet 9 inches deep, preceded the *naos* or *cella*. A flight of five steps, also the full

width of the temple, led up to the portico. Two of them, much worn in places by the footsteps of those who visited the sanctuary, could be seen *in situ* when the

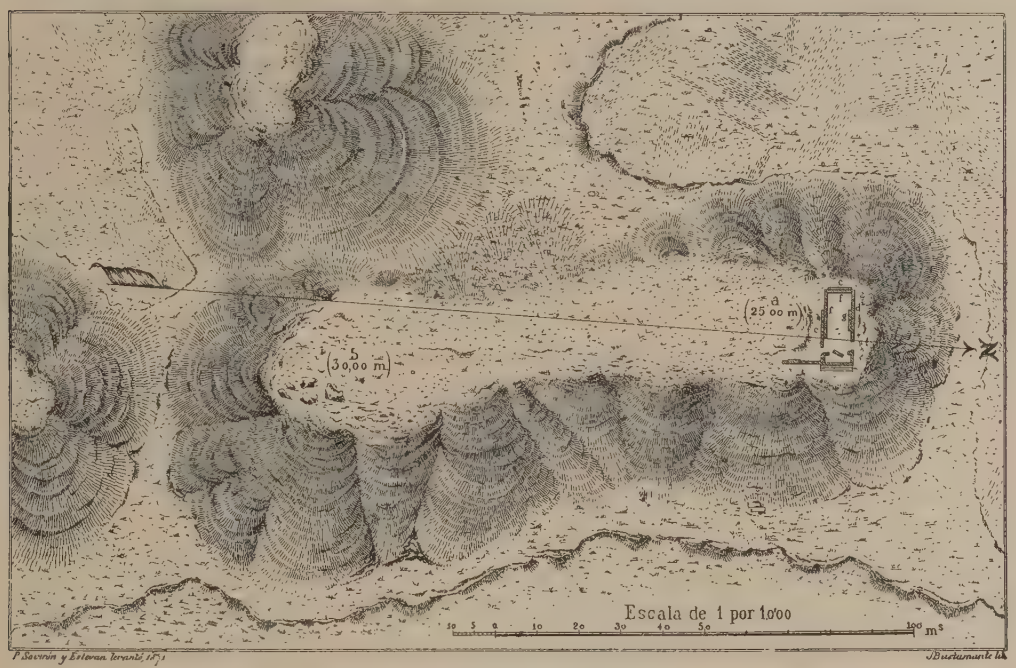


Fig. 2. Plan of the Cerro de los Santos.

first excavations were carried out in 1871. A double line of wall could be traced in parts of the interior of the building, and it has been suggested that it served as a pedestal bench on which the statues were placed. The building was what is known as *Distyle in antis*, and it belonged to a late archaic Greek style. I have made close research for any reference to the finding of architectural remains in connection with the sanctuary, and I have succeeded in tracing the discovery of the two drums of the shaft of a column of sandstone, smooth and round and some 13 inches in diameter; and of the capital of a column (fig. 3)[a] which probably also belonged to the temple. This capital is interesting. Broadly speaking, it belongs to the Ionic order, and it may, I think, be taken to show Græco-Phœnician

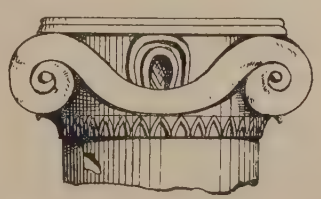


Fig. 3. Capital of a column from the temple on the Cerro de los Santos.

[a] *El arte en España* (Madrid, 1863), ii. 13.

influence. The peculiar carving of the *canalis* points to an early type, as a similar arrangement of volutes and *canalis* is found on the capital from the Bamboula Hill at Larnaca, where the Phœnician inscriptions and the *ex voto* gifts discovered point to there having been a sanctuary there also. The band which encircles the cap below the volute is of the "river plant" or "rais de cœur" pattern.[a]

The temple was paved with a mosaic composed of slabs in black and white stone; and, perhaps at a later date, with small lozenge-shaped bricks.

The history of the Cerro de los Santos may be briefly stated. It is mentioned under that name in the title deeds of the fourteenth century belonging to the Marquis of Motealegre, in whose possession it is now; but no reference is made to it in the report on the enquiry which Philip II. caused to be made into the antiquities existing in Spain in 1575 and in 1579. For centuries it remained covered with a dense forest, which was twice destroyed by fire and regrew more impenetrable than before. The forest was finally cut down in 1830, when the remains of the temple and its statues were laid bare. Attention was first attracted to them in 1860, and in 1871 the Spanish Government sent a Commission of Archæologists to examine and report upon them. The Commission found the ground much disturbed by previous excavators, but they carefully carried out their investigations, and Sr. Savirón, one of its members, issued an interesting report. The whole ground near the temple, from surface to bed rock, which in no place lay very deep, and from the valley to the plateau, was turned over and examined, and the remains of many statues and objects in bronze and in iron as well as some terra-cotta vases complete, and a great number of potsherds were found, together with fragments of *tegulæ*, of bricks, and of paving tiles. Among the smaller objects discovered were two hundred iron lanceheads which lay together in the hollow of a rock; ex-votos in bronze and in stone in the form of bulls, cows, and horses; parts of weapons; and last, but by no means least, two bronze statuettes and four *fibulæ* identical with those found at the Sanctuary at Despeñaperros. The pottery was varied in texture and colour. A great deal of it was composed of sherds from fine, well-shaped vessels of very dark but well-baked clay, similar in shape to those seen in the hands of the statues. Some red-coloured ware was also found, as well as some small terra-cotta vases of great delicacy and workmanship, some Iberian pottery, and a small fragment of "Saguntino." No inscriptions have come to light, but there is a tradition, founded probably upon fact, that part

[a] I am indebted to Mr. R. Phené Spiers, F.S.A., for valuable assistance in describing this temple.

of a large tablet with an inscription in what appeared to be Latin characters was discovered and destroyed many years ago. I can only trace three coins as having been found on the Cerro: two of them were small bronzes of Constantine the Great; the other was an autonomous middle bronze coin struck at Celsa (Colonia Vitrix Julia Lepida) about 45-41 B.C. The greater part of the statuary was found at the foot of the steep slope to the west of the temple, and it appeared to have been deliberately thrown down from the height above. Some of the statues were almost perfect, but most of them were mutilated, or damaged, or destroyed. Their variety is great, and they offer in themselves, from the points of view of history, of art, and ethnology, a subject for careful and interesting study. I will not attempt to minutely describe even the principal features of interest connected with them, but confine myself to illustrating and describing some of the best known and the best studied; those which have the closest parentage, if I may be allowed the expression, with the bronze statuettes of Despeñaperros. I would mention, however, before doing so, that when these statues were first brought to the notice of continental archæologists[a] they raised much scepticism and no little criticism. The scepticism was born of that not uncommon predisposition in those who do not know and in those who have never studied Spain to brand all antiquities that are found in or that come from *Hispania* as open to suspicion, or false, and it may be passed over. The criticism has done good. It has led, during the past thirty years, to a careful study, on the part of many eminent men, of the Cerro de los Santos statuary, and to the winnowing of the chaff from the grain, and to the firm establishment of the great archæological value of the discoveries to which I have just referred. It is not in a boasting spirit that I venture the opinion that I have unquestionably helped to uphold the authenticity of a number, and, indeed, of the most important of the statues, and to elucidate many interesting points connected with them by saving from dispersion or destruction the collection of bronze offerings dealt with in this paper. In the statues are to be found all the elements which constitute that phase in art which is peculiar to the districts of Spain with which I deal, and which was the outcome of Græco-Phœnician influences implanted on a receptive soil; where the peoples with whom the more highly civilised invaders came into contact became imbued with the

[a] I am sorry that I cannot include English archæologists among those who have studied these, but I do not know of a single English archæologist who has ever seen, carefully examined, or written of them.

sentiments and ideas of the master minds, and intuitively evolved that style and method in sculpture which became peculiar to them and which is sometimes known as "Bastitanean" art, from the name of the tribe within whose territory its manifestations are almost exclusively found. I will, however, call it by the better known and, I think, more appropriate name of "Iberian." It may seem that I am labouring the question of the Cerro de los Santos discoveries and neglecting those of Despeñaperros, but I will only illustrate and comment upon statues which have some analogy with the Sierra Morena statuettes, and, as I have indicated above, the longer way round will be the shorter in the end.

There are certain features of interest in connection with the statues which it will be useful to mention. A large number of statues, or fragments of statues, have been found; over two hundred. The statues of women predominate, and they very seldom show signs of workmanship at the back, a peculiarity which has been remarked in regard to similar statues which have been found in Cyprus. They were probably placed with the back to a wall. Relatively few statues but a large number of heads of men have been found, and they are in almost all cases worked at the back. The statues may roughly be classified into two groups, archaic and classic, but by far the larger number belong to the older division. I am indebted to a most learned contribution towards the literature on the subject of these statues which has just been published by Don José Ramon Mélida,[a] one of the leading archæologists in Spain, for some of the photographs and the description of the statues; and for other photographs and much information,[b] to M. Pierre Paris's valuable work, *Essai sur l'Art et l'Industrie de l'Espagne Primitive*, which should be studied by all who take an interest in the history of art, or in the archæology, of Spain.

Fig. 4 represents the head of a statue of a woman, surmounted with a high *calathos*, or cowl, which covers the back of the head and falls over the shoulders. The forehead is adorned with a richly worked *stephané*, or diadem, in metal, while a band of a clearly indicated egg-and-tongue pattern, which is usually connected with architectural adornment and not the adornment of the head, crosses the forehead and follows the line of the cheeks. The characteristic discs or ear-coverings, which took the place of ear-rings, can be seen suspended from a

[a] *Las Esculturas del Cerro de los Santos, Cuestion de Aunticidad.* Por José Ramon Mélida. de la Revista de Archivos. Madrid, 1906.

[b] The initials appended to the titles of the accompanying illustrations, J. R. M. or P. P. as the case may be, denote that they have been borrowed from the one or the other of the works above noted, *Las Esculturas*, etc. or *Essai sur l'Art*, etc.

decorated cord, or band; this in all probability passed over the head. M. Léon Heuzey, of the Louvre Museum, who has devoted much careful study to the Cerro de los Santos statues, mentions that a similar cowl was not rare in the ancient East before Greek influence put an end to such extravagant fashions, and he points out that similar head-dresses can be seen on terra-cotta statuettes from Syria and Rhodes of the sixth century B.C. Artemidorus, who wrote about 100 B.C., calls attention to the extraordinary head-dresses of the Iberian women, and

Fig. 4. Head of the statue of a woman from the Cerro de los Santos. (P. P.)

Fig. 5. Head of the statue of a man from the Cerro de los Santos. (P. P.)

asserts that they rolled up their hair until it projected like a small column, a foot high, from their heads, and that they covered hair and head with a black veil or *calyptra.*[a]

As to the head of a man shown on fig. 5, I cannot do better than render M. Heuzey's remarks with regard to it. "The work is much more simple than in the case of the head of the woman. In spite of the barbarism apparent in the

[a] *Revue d'Assyriologie et d'Archéologie Orientale* (Paris, 1891), ii. No. iii. 105, "Statues Espagnoles de Style Gréco-Phénicien (Question d'Authenticité)," par Léon Heuzey.

execution, the head recalls the fine Greek sculpture of the fifth and fourth century B.C. The locks of hair, which are short and numerous, are rendered in the metrical and decorative style in accordance with ancient oriental practice. It bears, in short, the inimitable stamp of a high art and suffices to demonstrate and proclaim that there existed among the Iberian populations an ancient local sculpture which was evolved from both Greek and Asiatic associations, as was the case among the Etruscans and in Cyprus; but it had an aspect of its own which

Fig. 6. Two female heads from the Cerro de los Santos. (J. R. M.)

saved it from being confounded with any other."[a] The two heads in fig. 6 in many respects are similar to the one in fig. 4, and call for but little remark. They have a similar row of "ovolos" around the head, as may be seen in the figure to the right. Some doubt has been expressed as to whether these were merely ornamental or whether they were intended to show undulating tresses of hair, such as they are represented in Greek archaic works, by a rendering borrowed from Chaldo-Assyrian art. That they are tresses of hair, there can be no doubt.

[a] *Op. cit.* 107.

Fig. 7 shows three male heads. I have just referred to the treatment of the hair and need not do so again. I would, however, call particular attention to the head on the left, which has a single undulating tress falling from under the head-dress along the neck and behind the ear. There should be a corresponding tress on the other side. The head is covered with a close-fitting cap or helmet, the border of which is thickened at the back so as to form a projecting band or roll. Both these peculiarities are clearly defined in the Despeñaperros statuettes. The strongly marked physiognomy of the subject, too, finds its analogy in the

Fig. 7. Three male heads from the Cerro de los Santos. (P. P.)

heads of some of those statuettes, although in a ruder and less artistic form. Señor Melida says of this head that the style is distinctly oriental and allied to the Cypriote, and that he considers it as an example of one of the earlier and better sculptures, executed in Iberia, but under the direct influence of oriental art.[a] There is a further peculiarity in connection with the first and third heads in fig. 7, that they both wear ear ornaments. In the case of the head to the left they appear to be suspended from the ears; in that on the right they traverse the lobe. Pliny states that it was an oriental fashion for men as well as

[a] *Las Esculturas del Cerro de los Santos*, 60.

women to wear ear-rings, and the practice was common among the Persians, the Babylonians, the Lybians, and the Carthaginians, while among the Greek and Roman ear-rings were only worn by females.

Fig. 8 shows a full length statue from the Cerro with a high conical headdress, which appears to be covered with a cowl or capuchin, hiding everything but the face, and falling in mathematically regular and symmetrical folds to the waist. Like all the statues of woman found at the Cerro de los Santos, the votary holds the libation cup with both hands just below the breast. This same conical headdress is represented in almost every imaginable form in the ex-votos from Despeñaperros. (Plate XV.)

Fig. 8. Statue of a woman from the Cerro de los Santos. (J. R. M.)

I now come to the most interesting and beautiful of all the statues found at the Cerro de los Santos, "the pearl of the collection."[a] (Fig. 9.) The total height of the statue, with the pedestal, is (1·35 m.) 4 feet 5 inches, and without the pedestal (1·15 m.) 3 feet 9 inches. There is a copious literature with regard to this statue, in which every feature and every detail has been critically and scientifically examined. I will not refer to it now, but a short description of the statue, drawn from Señor Melida's recent and valuable work, will not be thrown away. Generally speaking, this fine statue, in the quiet dignity of the features, in the richly ornamented headdress, in the adornments that fall thickly from both sides of it and which support the elaborate ear-discs, in the arrangement of the robes, and in the folds of the cloak, in the attitude of the hands and the form of the cap, convincingly reflect the religious sentiment and the artistic feeling and methods that inspired the sculptor who produced this *chef d'œuvre*, and of the culture of the people who frequented and made offerings at the sanctuary. The elaborate stephané recalls those of the women of Rhodes and of Cyprus. The T-shaped fibula which closes the tunic at the neck corresponds to an identical form of brooch which has been found at many points of the Iberian Peninsula. The costume in its *ensemble* is Greek, but with peculiarities which impart to it a sort of

[a] *Revue d'Assyriologie, etc.* 99.

oriental colouring. The symmetrical arrangement of the drapery is purely Greek in origin, and goes back to the beginning of the fifth century before our era, and recalls in some of its details the Hera of Samos in the museum at the Louvre. The symmetrical folds of the mantle, or veil, are in conformity with archaic Greek precedents, but M. Heuzey,[a] who has most carefully studied the statue, expresses the opinion that the glands which terminate the corners, as well as the brooch to which I have just referred, were inspired by oriental or barbaric fashions. The cup, which, too, is oriental in form, is interesting, because vessels of similar shape have been found, with the well-known bronze heads of bulls, and in pre-Roman surroundings at Costig, in Majorca.

Fig. 10 shows but the fragment of a statue. It is only 8 inches high, but is of great archæological importance. Its genuineness is quite beyond discussion. It was found, in 1871, by Señor Savirón, some 4 feet 6 inches below the steps of the temple. It shows better workmanship than any of the other statues, fig. 9 excepted. But its

[a] *Op. cit.*

Fig. 9.
Statue of a woman from the Cerro de los Santos. (J. R. M.)

importance does not lie in that only. It consists in this, that in the shape and position of the mitre, in the enormous ear-discs, in the fold of the veil at the back of the head, and in the rich jewellery that falls on the breast, you find the same personal adornments that form so striking a feature in the celebrated and beautiful Dame d'Elche.

Fig. 11 reproduces this beautiful bust. It was not found at the Cerro de los Santos, but at Elche, the site of the Iberian city of Ilici, the *Colonia Julia Ilici Augusta* of the Romans. It is made of the same fine-grained calcareous stone as the statues from the Cerro, and in the mitre, the discs, the pendants, the necklaces, and the folds of the garment, it distinctly belongs to that group; and as there is direct relationship between some of its peculiarities and those of the bronze ex-votos from the Sierra Morena, I do not hesitate to include it here. It certainly forms, in the repose and dignity of the features, in its fidelity to nature, in the richness of the adornments and in minuteness of detail, in the "technique" shown, and the power of execution, the masterpiece of all the Iberian sculpture which has hitherto been brought to the light of day in Spain. No one can contemplate this bust without becoming imbued with a deep sense of admiration and respect for the art and the artist that produced it, and without feeling that in it there are revealed to him the features and the sentiments, and the tastes and the customs of a race and people, the Iberians, who were perhaps unknown to him as the originators of a new phase in art. The question may occur as to how, and where, there can be any relationship between this magnificent work of art and the very crude statuettes from Despeñaperros. It comes in more particularly in the combination of the mitre with the enormous ear-discs, which (a detail to be noted) are suspended by straps or cords passing over the head. It may appear that there is an unusual refinement in the features of the Dame d'Elche which is not to be observed in the other statues

Fig. 10. Fragment of the statue of a woman from the Cerro de los Santos. (J. R. M.)

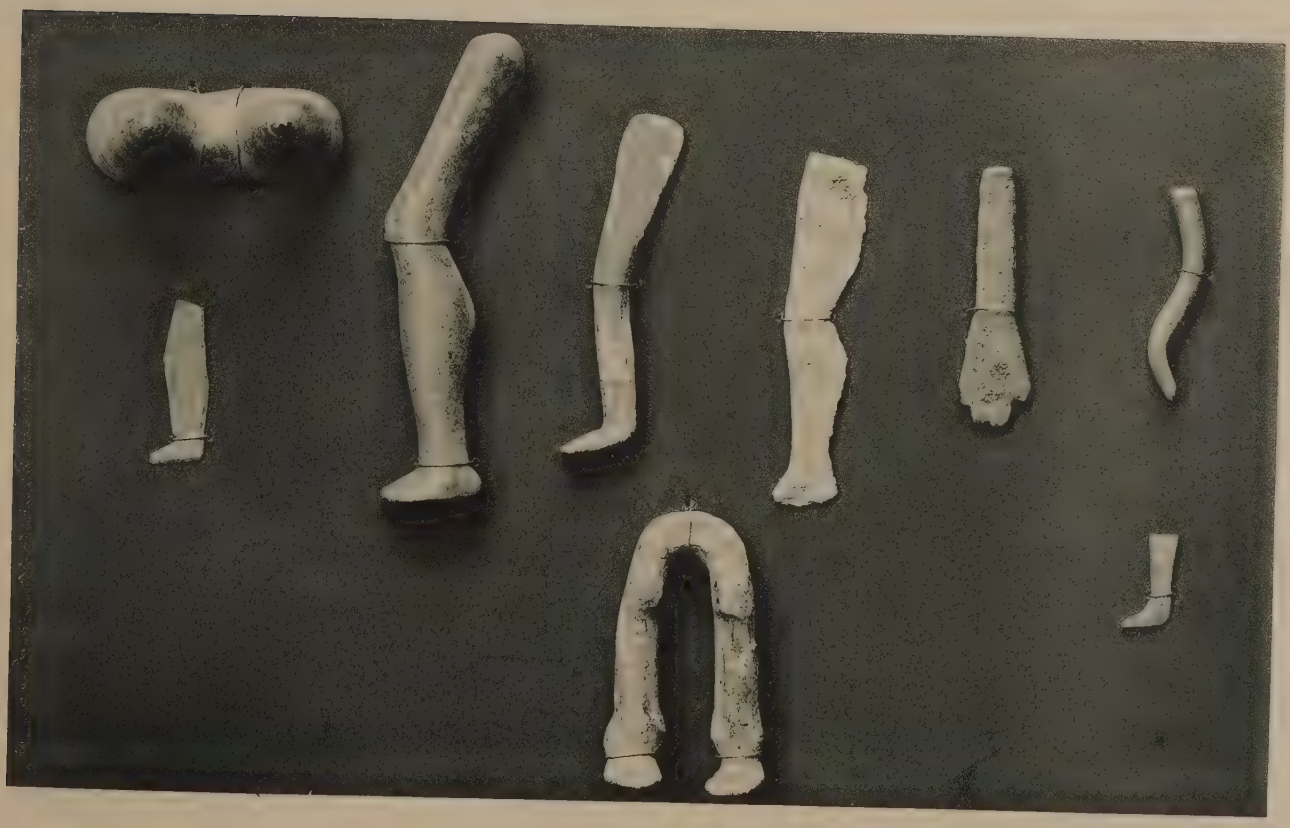
and may therefore seem strange, but I hope to show that that distinction of type has been most carefully preserved and elaborated in some of the statuettes from

Fig. 11. Bust of a lady found at Elche (the *Dame d'Elche*). (P. P.)

Despeñaperros, to which at last I will turn. But before doing so, however, attention must be directed to a collection of bronze images (fig. 12) taken from M. Pierre Paris's book, which form, in some respects, a connecting link

between the Sanctuary at the Cerro de los Santos and the Sanctuary in the

Fig. 12. Bronze images from Southern Spain. (P. P.)



PRE-ROMAN BRONZE VOTIVE OFFERINGS FROM DESPEÑAPERROS, SPAIN (FULL SIZE).

Published by the Society of Antiquaries of London, 1906.

Sierra Morena. They were found in different parts of Southern Spain. In the top left-hand corner (1) is the figure of a woman with a calathos reduced almost to a stephanos. There are many examples of this form of headdress from both sanctuaries. The veil falls in archaic folds to the feet. In the middle figure (2) the large pendent ear-discs and the necklace with a central pendant can be easily distinguished. The small bronze image (4) is remarkable. Here again we have the mitre, the long spreading veil, large metallic discs or earrings, and the libation cup, held in both hands and well detached from the body. In the lowest figure (5), that of a man, we have the close-fitting helmet and the undulating tresses.

And now we will go due west, and through Cástulo to the Sierra Morena and to the pre-Roman Sanctuary there; the map forming fig. 1 will show its position. The "Roman" roads which connect Cástulo with Emerita Augusta and with Adellum, and the one which passes in close proximity to the hallowed spot, are interesting. I have already described the site. An enormous mass of quartzite rock has, in some remote period, become detached from the face of the precipice above, and lies in front of a deep depression in the rock. There is, at present, no sign of a cave or hollow. Below the rock, and covering a small but comparatively level space, is an accumulation of rubbish and rock, and it is here that the ex-votos are found. The objects are usually discovered in layers of dark soil, which is composed of earth, pieces of charcoal, potsherds, and the bones of animals; but this is by no means always the case. I have found them in crevices between the larger stones as well as in the loose ground. The whole place bears the appearance of having been turned over and over again, by treasure hunters, during the course of centuries. They may have cast aside the small bronze objects as being of no value to them. Most of the pottery might be classified as Roman, although among it there is a not inconsiderable quantity of the *débris* of older pottery, coarse in texture and black in colour, with a large admixture of grains of quartz or chalcite. I could discover no trace of a building on the spot itself, but in close proximity to it I found bricks and tiles which show signs of their being of Roman origin; while on the highest point of the mountain there was a fortified post which was, to judge by the pottery I found there, undoubtedly Roman.

Plates XII. to XV. reproduce some of the most interesting of the votive offerings from the Sanctuary at Despeñaperros.

In the upper part of Plate XII. there are four statuettes. The one on the left represents a warrior, with the ringlet on each side of the head which I have

already pointed out in the case of the head from the Cerro de los Santos (fig. 7). He carries the typical round Iberian shield slung at his back and two weapons, probably swords, in the left hand. The next figure is typical of the crude but expressive workmanship of the ex-votos from Despeñaperros. The following statuette is remarkable for the breadth of the shoulders. The fourth represent the type of the Dame d'Elche. Here we have the same form of mitre, the veil, the large ear-discs, the necklace and the elaborate robe.

The objects shown in the lower part of Plate XII. are ex-votos in their most conventional and simplest form, such as breasts, an arm, feet, legs, and a pair of legs.

Plate XIII. forms a particularly interesting collection of images, which are varied in composition, in form, and in *technique*. The second figure from the left in the top row was cast by the *cire perdue* process; the third was worked with a file from a small bar of bronze. None other like the sixth in the row has been found in Spain. The seventh image with the bended arms ornamented with bracelets, and the hands outspread on the breast, is also unique. Several figures in the lower row resemble mummies.

Plate XIV., again, shows peculiarities in design and workmanship; and here again the human form is rough-hewn in the crudest manner. It is made out of a thin sheet of bronze or copper, cut to the required length, turned slightly at one end to represent the feet, and twisted at the other end so that the head may be placed at right angles to the body, while the features are marked by notches cut with a file. In a few instances the toes have been marked by file notches on the upturned "feet"; and in one case (second figure from the left in the bottom row) the file has marked out the arms and outspread hands which fall along the body.

Plate XV. shows the headdress of the Iberian woman which so surprised Artemidorus in its many and fanciful forms. The first three images would hardly be accepted as representing the human form were it not that their *provenance* is incontestable, and that they offer points of analogy with clearly indicated statuettes which leave no doubt as to their purpose.

Figs. 13, 14, and 15 represent three mounted Iberian horsemen. They form, perhaps, the most interesting group of objects discovered at the Despeñaperros Sanctuary. The close-fitting helmet and ringlets, to which I have already referred (fig. 7), and the finely cut features can be plainly distinguished in fig. 15, while the care with which the weapons have been designed and worked out, and the

PRE-ROMAN BRONZE VOTIVE OFFERINGS FROM DESPEÑAPERROS, SPAIN (FULL SIZE).

Published by the Society of Antiquaries of London, 1906.

Fig. 13. Bronze equestrian figure from the Despeñaperros Sanctuary. ($\frac{1}{1}$.)

Fig. 14. Bronze equestrian figure from the Despeñaperros Sanctuary. ($\frac{1}{1}$.)

fidelity with which the bridles and trappings of the horses have been rendered, are truly remarkable.

The group of *fibulæ* or brooches shown in fig. 16 is interesting because brooches of this form have not, so far as I am aware, been found outside the Iberian peninsula, although they are widely distributed there. A very large number of them, amounting to several hundreds in the aggregate, have been discovered at Despeñaperros. They are all of the same pattern, and mostly

Fig. 15. Bronze equestrian figure from the Despeñaperros Sanctuary. (½.)

of the same size. Some are lightly decorated by file notches around the ring and across the bow; but, generally speaking, they are quite plain. They are simple and ingenious in construction, and they formed a practical and I have no doubt an extensively employed method of attaching the garments. Fig. 17 shows an Iberian bronze statuette[a] with one of these very brooches attaching the vestment at the shoulder. In consequence of brooches of this form having been found with other objects which have been identified as

[a] In the possession of Don Antonio Vives, at Madrid.

PRE-ROMAN BRONZE VOTIVE OFFERINGS FROM DESPEÑAPERROS, SPAIN (FULL SIZE).

Published by the Society of Antiquaries of London, 1906.

belonging to definite periods, it is possible, in a few cases, to date them. One, of perhaps a somewhat older form, was found near Dianium (Denia), an ancient Greek colony on the east coast of Spain, with sixteen silver coins from Massilia, Rhodes, and Sicily, the latest of which is dated about 360 B.C. Others were found at Mátaro in Catalonia, in an ancient cemetery, with an Iberian sword and Greek vases and other similar pottery. The date of this find is about 240 B.C. Mr. Bonsor has found several in the south of Spain near Carmona in a necropolis

Fig. 16. Bronze brooches from Despeñaperros.

showing Celto-Punic influences, and these he very reservedly dates at between 400 and 200 B.C.

It may be asked how it happened that so large a number of brooches have been found in this sanctuary? To such a question it would be difficult to give a decisive answer. One can only, in this instance, judge by analogy and point to the survival of habits and customs as offering a possible solution of the problem. Herodotus tells us, in Book v. chap. 88, that "it is said further that the Argives and Eginetans made a custom . . . for their women . . . to offer brooches rather than anything else in the temples of these goddesses," and in his

Book of Brittany Mr. Baring Gould points out, when speaking of Guingamp, that there "are peculiarities noticeable there. In a side chapel is an image of S^te^ Catherine. Unmarried girls resort to this statue and stick pins into it. If the Saint shakes herself free during the night that is a token that she has heard the prayers offered and will obtain husbands for the girls who pricked her."[a] The same superstition attaches to the statue of St. Guerec, at Ploumanach,

Fig. 17. Iberian bronze statuette.

also in Brittany. At the present day, and to come back to Spain, there is a shrine in Toledo containing an image known as the "Virgen de los Alfileritos" ("the Virgin of the little pins"), where the young Toledanas are wont to offer a pin to the Virgin in the hope of propitiating her, and thus obtaining a *novio*. May not the Iberian women have made their offerings of brooches at the Despeñaperros shrine with the same laudable object?

[a] S. Baring Gould, *A Book of Brittany* (London, 1891), 76.

PRE-ROMAN BRONZE VOTIVE OFFERINGS FROM DESPEÑAPERROS, SPAIN (FULL SIZE).

Published by the Society of Antiquaries of London, 1906.

There are questions evolved from the study and consideration of the statues, and images, and objects which I have shown to-night, which will naturally and readily suggest themselves, but to which it is difficult in most cases to give decisive answers. I refer more especially to questions as to whether the statues represent divinities or votaries; as to the beginning of the period when this almost unknown phase in art was first developed in Iberia; and, as a corollary, how long it lasted there. Again, there is the question as to whether the works of higher artistic merit were produced at the beginning or at the end of that period, or, in other words, whether there was progression or retrogression in its many and varied forms and phases. With regard to the first question there can be no doubt that the statues represent "votaries" and not divinities. The expression of quiet devotion on many of the faces, the perpetuation of their chief characteristics, the frequent presence of the libation cup in the case of the statues from the Cerro, and the open hands which still hold the gift to the gods in the case of the Despeñaperros Sanctuary, all point to hieratic influence, and to the fact that the statues represented worshippers who were offering to the titular god of the Sanctuary. There is no evidence forthcoming to show who that divinity may have been; and so little is known of the mythology of the Iberians, beyond the names of some of their local gods, that it would be hazardous even to guess at the name. All that one can say is that the divinity was probably a god of their own, indigenous, so to say, and not introduced from abroad.

With regard to the period I will deal with the corollary first. I think that those best able to judge are of the opinion that there was retrogression and not progression in the art, and that the Dame d'Elche may be taken as a guide to the beginning of the period, which may consequently be dated from the end of the fifth century B.C. It is much more difficult to say how long it lasted. Two hundred years would bring it to the Roman occupation of Spain, but it must have lasted longer than that. There are unmistakeable evidences of the presence of the Romans at the Cerro de los Santos, and the same can be said of the Sierra Morena Sanctuary, where sherds of Roman pottery lie intermingled with the images, and where the only monies found are the small copper coins of the later emperors. As to the Cerro I have no personal knowledge. With regard to Despeñaperros I am of the opinion that the country was then very much as it is now; that it was, and that it had long been, an important mining centre where there was a large town, Cástulo, which had unquestionably been Carthaginian, and which remained for a long period in Roman hands, and where

there was a large population which by tradition and in practice looked upon the Sanctuary as a hallowed spot to which, during many centuries, they were wont to resort to make their offerings. I hope some day, and I trust before very long, to clear the site, and to settle, once and for all, the interesting but not unimportant question as to the exact location and the form of the Sanctuary.

VI.—*The Loss of King John's Baggage Train in the Wellstream in October*, 1216.

By W. H. St. John Hope, *Esq.*, *M.A.*, *Assistant Secretary.*

Read 15th February, 1906.

The subject of this paper has been suggested by a well-known story, to be found in one form or another in many a popular History of England, that the young King Henry the Third was crowned at Gloucester in 1216 with a golden circlet, because the crown of King John his father had been lost with all his other treasures in the waves of the Wash.

That a circlet was so used we have the authority of Matthew Paris,[a] but whether by reason of the loss of the royal crown, or the more probable difficulty of obtaining the crown itself in the nine days that intervened between the king's accession and his coronation,[b] the historian does not say.

The coronation of the young King Henry is not, however, a matter that concerns us now, nor need we inquire whether the crown was otherwise than in safe keeping at Westminster, but I should like to submit to the Society for consideration certain points arising from that part of the story which relates to the loss of King John's treasures in the waters of the Wash.

That a catastrophe of an unusual character actually befell the king there can be no doubt, and it is a matter of legitimate inquiry where and how it occurred, and whether it can have any possible interest for us to-day.

[a] Matthew Paris has, as the heading of the account of King Henry's coronation: "De prima regis Henrici Tertii coronatione, quæ per quendam circulum aureum facta fuit, a qua coronatione computantur anni coronationis ejus." *Chronica Majora* (Rolls Series 57), iii. 1.

[b] John died on 19th October, and Henry was crowned on the 28th of the same month.

Before entering upon such inquiry it is desirable to review the king's acts for some little time before his death.

It will be remembered that no sooner had the Great Charter been wrung from the reluctant king on 15th June, 1215, than John began to plot how he might avenge himself on the barons. Instead of sending away his mercenaries, as he had promised in the Charter, he set to work to collect additional forces from abroad. He also procured from the pope the excommunication of the barons and a release from his oath to observe the Charter itself. The revolt of the barons followed, and though some of the more patriotic continued to side with John, the rest sought help from France, and invited Lewis, the son of King Philip, to come and be their king.

Lewis landed in Kent in May, 1216, and soon found himself master of great part of the kingdom, including most of its strongholds. But the castles of Dover and Windsor held out for the king, and to them Lewis laid siege.

John's movements day by day can be laid down with the greatest exactness from the evidence of the Patent and Close Rolls,[a] and from them we learn that he had retreated on the landing of Lewis, first to Winchester, and then by way of Ludgershall, Devizes, Wilton, Sturminster, and Wareham to Corfe Castle, where he remained from 23rd June to 17th July. Here he seems to have occupied himself in collecting a considerable army, drawn chiefly from the garrisons of his castles, with which, according to Roger of Wendover, he proceeded to ravage during harvest time the lands of the earls and barons, burning their houses and destroying their crops. The king's itinerary shows that he set out on this intent from Corfe on 18th July through Sherborne, Bristol, Gloucester, and Hereford, and so on to Shrewsbury and Whitchurch and the Marches of Wales, where he stayed for about a fortnight, finally returning to Corfe, by the same way that he had set out, on 25th August. The king started off again the next day with the evident intention of relieving the Castle of Windsor, which had now been besieged for nearly two months. The castles of Old Sarum and Marlborough, which were directly in the line for Windsor, had been surrendered to Lewis by their castellans, the king was therefore obliged to follow a roundabout way through Sherborne, Wells, Bath, Bradford, Chippenham, Cirencester, Oxford, and Wallingford to Reading, where he arrived on 6th September. John stayed in the neighbourhood of Reading from the 8th to 13th, when finding apparently that his forces were

[a] See the Itinerary for his reign in *Rotuli Litterarum Patentium*, vol. i. part i., edited for the Commissioners of the Public Records by Sir T. D. Hardy, and published in 1835.

not strong enough to relieve Windsor Castle he marched northwards to intercept, if possible, the King of Scots, who had come south to do homage to Lewis at Dover.[a]

John reached Bedford on 15th September, and went on about thirty miles the next day to Cambridge, so as to put part of his forces athwart Alexander's way homewards; the rest seems to have gone on to ravage the lands of the Earl of Arundel, Roger Bigot, William of Huntingfeld, Roger of Cressy, and other barons in Norfolk and Suffolk.[b]

John was still at Cambridge on 17th September, but on the next day, Sunday, he was twenty-five miles away at Robert de Vere's castle of Hedingham in Essex, which he had captured earlier in the year,[c] and also at Clare in Suffolk, not far from Hedingham, where there was the strong castle of Richard Earl of Hertford, another of the rebel barons.

On tidings of John's misdoings coming to the ears of the barons who were investing Windsor Castle, they at once raised the siege, and having burned their engines of war,[d] hurried after the king in the hope of taking him prisoner. John seems to have heard of their pursuit of him while at Hedingham or Clare, for Monday the 19th is blank in the itinerary, a fact strongly suggestive of a hurried retreat and forced marches, with no leisure to think of anything save escape from his foes.

Roger of Wendover says that John betook himself to Stamford.[e] This would have entailed a journey of about twenty-six miles from Clare to Cambridge and over forty miles more on to Stamford. Roger's statement is, however, probably correct, for on the Tuesday John was at King's Cliffe, a few miles south of Stamford, and later in the day at William of Aumale's castle of Rockingham, hard by. He was still at Rockingham the next day, but on Thursday, 22nd September, he had reached Lincoln, over fifty miles further north, in order to

[a] So the Barnwell Chronicler in *Memoriale Walteri de Coventria* (Rolls Series 58), ii. 231; and Roger of Wendover, *Flores Historiarum* (Rolls Series 84), ii. 193.

[b] *Flores Historiarum*, ii. 192, 193. Roger of Wendover transposes the raid on the Welsh border and the ravaging of East Anglia, or rather interposes the ravaging between two raids, but John's itinerary shows that so far as the king's movements are concerned the chronicler is not quite accurate.

[c] On 25th or 26th March.

[d] R. de Coggeshall, *Chronicon Anglicanum* (Rolls Series 66), 183.

[e] R. de Wendover, *Flores Historiarum* (Rolls Series 84), ii. 193.

relieve the castle, which was being besieged by Gilbert de Gant and others, who fled on his approach.

The barons in pursuit of John followed him as far as Cambridge and then returned to London.[a]

John having relieved Lincoln wasted with fire and sword the Isle of Axholme, while a portion of his forces was detached, under the leadership of Savaric de Malleone, to devastate the lands of Croyland Abbey, which were miserably despoiled and even the sacred vessels of the church carried off.[b]

The king meanwhile passed through the parts of Lindsey and Holland, and whenever he found lands belonging to his enemies gave them to pillage and to such burning as was never seen before.[c]

John's own movements can be readily followed from the Patent and Close Rolls. On 1st and 2nd October he was at Lincoln; on the 3rd and 4th at Grimsby. By the evening of the 4th he had reached Louth, and on the 5th he was at Boston. Thursday the 6th is blank in the itinerary, perhaps because the king was spending the day at Swineshead Abbey, hard by. On the 7th and 8th he was at Spalding, and by Sunday the 9th he had reached Lynn.

I have been at some pains to follow the king's movements at what may seem unnecessary length in order to show that he was not going aimlessly about the country, but that, on the contrary, he was accompanied by a considerable army, and striving to avenge himself on those who had abandoned his cause for that of Lewis. His army was largely composed of mercenaries, and by the time he reached Lynn the amount of loot and spoil that had been accumulated by his men must have been enormous.

Why John went to Lynn at all is not clear. The language of the Barnwell chronicler implies that a hostile force, which fled at his approach, had assembled against the town. It is however possible that the king's flight to Stamford had separated him from part of his forces, which had meanwhile continued its ravages in East Anglia, and that anxiety to reunite his army brought him southwards to Lynn.

[a] R. de Wendover, *Flores Historiarum* (Rolls Series 84), ii. 193.

[b] *Memoriale fratris W. de Coventria* (Rolls Series 58), ii. 231, 232.

[c] The account of the Barnwell chronicler, used later in the *Memoriale* of Walter of Coventry, says of this journey of John: "Ubicunque autem in hoc itinerario hostium terras reperit, direptioni eas dedit; factæque sunt in combustionem et cibum ignis, ita ut non meminerit ætas nostra tantillo tempore talem combustionem nostris in partibus factam fuisse." The use of the possessive pronoun is interesting in view of the nearness of Barnwell to the scene of operations.

John stayed at Lynn for three days from Sunday, 9th October, to Tuesday, the 11th, inclusive. But on the 12th he was at Wisbech, and later in the same day at Swineshead Abbey.

It was during this fateful journey from Lynn that there befell the king the disaster which forms the subject of this paper.

According to Roger of Wendover, John had been joyfully received by the townsfolk of Lynn and honoured with rich gifts. "Then, journeying towards the north, in the river which is called *Wellestrem*, by an unexpected accident he lost all his wagons, carts, and sumpter horses with the treasures, precious vessels, and all the other things which he loved with so much care; for the ground was opened in the midst of the waves, and bottomless whirlpools, which swallowed them all up, with the men and the horses, so that not one foot escaped to announce the disaster to the king. The king nevertheless, having barely escaped with his army, passed the following night at an abbey which is called Swineshead, where, as it was thought, there befell him so great grief of mind on account of the things swallowed up by the waves that he was seized with sharp fevers and began to be grievously sick. Moreover he increased the trouble of his illness by his baneful gluttony, and that night, gorged too full with the fruit of peaches and drinking of new cider, he strongly excited and inflamed the feverish heat within him. Notwithstanding this, departing thence at daybreak, although with much exertion, he went to stay at the castle of Lafford (*i.e.* Sleaford), whence weighed down by very great trouble of body, he on the morrow with difficulty reached on horseback the castle of Newark; at which place, the disease increasing, he received the counsel of confession and the Eucharist from the Abbot of Croxton. . . . . And afterwards on the night which next followed the day of St. Luke the Evangelist he died."[a]

[a] "Deinde versus aquilonem iter arripiens in fluvio, qui Wellestrem dicitur, carretas omnes, bigas et summarios, cum thesauris, vasis pretiosis et rebus omnibus, quæ propensiori cura dilexit, inopinato eventu amisit; aperta est enim in mediis fluctibus terra et voragines abyssus, quæ absorbuerunt universa cum hominibus et equis, ita quod nec pes unus evasit qui casum regi nuntiaret. Rex tamen cum exercitu suo vix elapsus nocte sequenti apud abbatiam, quæ Swinesheved dicitur, pernoctavit, ubi, ut putabatur, de rebus a fluctibus devoratis tantam mentis incurrit tristitiam, quod acutis correptus febribus cœpit graviter infirmari; auxit autem ægritudinis molestiam perniciosa ejus ingluvies, qui nocte illa de fructu persicorum et novi ciceris potatione nimis repletus febrilem in se calorem acuit fortiter et accendit. Veruntamen summo inde diluculo, licet cum labore recedens, ad castellum de Lafort hospitaturus perrexit, ubi maxima corporis prægravatus molestia in crastino vix ad castellum de Newerc equo vehente pervenit; quo in loco invalescente morbo, ab abbate de

Matthew Paris, as the interpreter of Roger of Wendover, gives in his *Chronica Majora* an account which is word for word the same as Roger's, but in his later *Historia Minor*, or *Historia Anglorum* as it is called, he has another version of the disaster headed "De jactura regis apud Wellestrem," which I have ventured to translate as follows:

Afterwards King John journeying towards the north, while all the inhabitants fled from his face, as if from a rapidly approaching storm, ventured to cross without a guide the sea-water mixed with the river water, which place is called *Wellestrem*, but (himself) barely escaping he irrecoverably lost at the same spot the carts and sumpter horses carrying his booty and spoil, and all his treasure and furniture. For the ground was opened in the midst of the waves, and the sand, which is called quick, swallowed down everything, horses and men, arms, tents, and victuals, and the things which the king, next to his life, held too dear in the world.[a]

The monk of Coggeshall, who wrote the well-known chronicle attributed to Abbot Ralph, also gives an account of the king's loss, but with a somewhat different version of his illness. He says nothing about the king's journey to Swineshead, but describes his disorder as originating at Lynn in his intolerable gluttony, which brought on first indigeston and then dysentery. After being blooded at Sleaford the king recovered somewhat. "But here when the messengers of those shut up in Dover Castle had come and showed the cause of their coming, the disorder broke out again from the grief that seized him. Besides this a very great distress troubled him, because he had lost on that journey at the Wellstream his chapel with his relics, and certain sumpter horses with various household stuff, and many of his household were drowned in the sea waters and swallowed

Crocstuna consilium confessionis et eucharistiam suscepit. . . . . Qui postea in nocte, quæ diem sancti Lucæ evangelistæ proxime secuta est [19 Oct. 1216], ex hac vita migravit." *Rogeri de Wendover Flores Historiarum* (Rolls Series 84), ii. 195, 196.

Matthew Paris has the same verbatim, in his *Chronica Majora* (Rolls Series 57), ii. 667, 668. Another and shorter version, based on and written by M. Paris, is given in the *Flores Historiarum* erroneously attributed to Matthew of Westminster. See Luard's edition (Rolls Series 95), ii. 161.

[a] "Deinde vero rex J. versus aquilonem iter arripiens, cum fugerent omnes incolæ a facie ejus, velut adveniente rapidissima tempestate, aquam marinam cum fluviali mixtam transire sine duce præsumpsit, qui locus Wellestrem dicitur; sed vix evadens, ibidem bigas, summarios prædas et rapinas portantes, et omnem thesaurum et supellectilem irrecuperaliter amisit. Aperta [est] enim in mediis fluctibus terra, et sabulo, qui vivus dicitur, et absorbuit universa, equos cum hominibus, arma, tentoria, et victualia, et quæ in mundo rex præter vitam possedit cariora." Matthew Paris, *Historia Anglorum* (Rolls Series 44), ii. 190.

down in the quicksand in the same place, because incautiously and precipitantly they had pressed on before the tide had receded." [a]

On collating the three accounts it will be seen that they agree in these main facts:

1. That John himself and his army barely escaped disaster;
2. That his baggage train, which followed after, was lost in the quicksands of the Wellstream; and
3. That distress of mind at his loss so affected the king that it contributed to his death a few days later.

With this last fact we need not further concern ourselves, but there is ample room for inquiry as to the nature and extent of the disaster to the baggage train, and the place where it is said to have occurred.

But first a few words as to our authorities and their credibility.

Roger of Wendover's fame as an original historian is too well known to need further reference here. I would only point out that inasmuch as he was prior of Belvoir for some time before 1220 he was the contemporary and near neighbour of Adam the abbot of Croxton, who attended King John on his deathbed, and was no doubt acquainted with the details of the Wellstream disaster.

Of Matthew Paris there is also no need to speak. Bishop Stubbs calls him the interpreter of Roger of Wendover, whose chronicle he did not hesitate to adopt bodily as the basis of his *Chronica Majora*. But his *Historia Minor* is an independent composition, compiled from original sources, though not written until after 1250.

The writer of the Coggeshall chronicle is believed to have been Ralph, abbot of the Cistercian Abbey of Coggeshall in Essex from 1207 to 1218, when he

[a] "Rex, comperto quod barones cessassent ab ejus insecutione, conversis habenis, reversus est ad Len, et præfecto ibidem Savarico de Malo-leone, Pictavino, coepit firmare Len. Sed ibidem, ut dicitur, ex nimia voracitate qua semper insatiabilis erat venter ejus, ingurgitatus usque ad crapulam, ex ventris indigerie solutus est in dysenteriam. Postea vero cum paululum cessasset fluxus, phlebotomatus est apud villam in Lindessi, quæ dicitur Lacford. Huc ergo cum venissent nuncii inclusorum castri Doveræ, et intimassent causam adventus sui, morbus ex dolore concepto recruduit. Præterea maximus dolor eum augebat, quod capellam suam cum suis reliquiis, et quosdam summarios suos cum varia supellectili, in itinere illo amiserat apud Wellestrem, et multi de familia ejus submersi sunt in aquis marinis, et in vivo sabulone ibidem absorpti, quia incaute et præcipitanter se ingesserant, æstu maris nondum recedente." *Radulphi de Coggeshale Chronicon Anglicanum* (Rolls Series 66), 183, 184.

resigned office. He was therefore not only a contemporary writer, but he must have been in a favourable position geographically to have known of John's raids in the Eastern Counties. Since, moreover, his abbey was of the same Order as Swineshead, the intercommunication between the Cistercians would soon have made him acquainted with the facts of the special note he has entitled "De Morte Regis Johannis." Oddly enough he does not make mention of any visit of the king to Swineshead itself.

The topography of the country near the probable site of the disaster has undergone such extensive changes, not only since the early part of the thirteenth century but almost within living memory, that at first sight it would seem hopeless to attempt to lay down the route taken by John and his army, that taken by his baggage train, or to fix the site of the accident that befell the latter. The task is, however, as I hope to show, not so difficult as might be supposed.

The route taken by John himself can be laid down with tolerable certainty. We know from the Patent and Close Rolls that he was still at Lynn on the 11th October, but on the 12th he was at Wisbech, and later in the day at Swineshead. Now the distance from Lynn to Wisbech is some fifteen or sixteen miles, and from Wisbech to Swineshead quite thirty-five miles more. For what reason John had decided to return into Lincolnshire does not appear, but he must have found it convenient to get on to Wisbech and break his journey there, and I suggest that he left Lynn on the 11th sufficiently early to enable him to reach Wisbech during daylight. He probably crossed the river at Lynn a little before noon, when it was low water, to West Lynn, and then rode on through Clenchwarton, past Terrington St. Clement's, through the two Walpoles and West Walton.[a] The king no doubt stayed the night at Wisbech Castle, and on the morrow, after transacting business, as testified by the Rolls, continued his journey "towards the north," *i.e.* into Lincolnshire, up the west bank of the Wellstream, through Newton, Tydd St. Mary, Long Sutton, and Holbeach, all old villages, arriving at Swineshead Abbey in time to attest more documents the same day. John's journey round by Wisbech was evidently unknown to the chroniclers, who were thus obliged to say that he and his army "escaped with difficulty" to account for his safe arrival in Lincolnshire. There may, however, be another interpretation of this.

[a] The king might have gone southwards from Lynn to Wiggenhall St. Mary's, where there was a ford, if not a bridge, and thence across the marshes by the old road to Wisbech. But the point is not material.

The route taken by the ill-fated baggage train is also easy to follow. That it did not go the same way as the king is certain, since it would otherwise not have been lost in the estuary of the Wellstream, and it is, I think, equally clear that it had orders to follow and overtake him by a more direct line.

It will be seen from the map that opposite King's Lynn, across the Ouse, there is a road extending westwards from West Lynn past Clenchwarton and Terrington St. Clement's to a place called Cross Keys, in the parish of Walpole St. Peter, whence its name. The medieval churches along the line are enough to prove that the road is an old one. Until the present bridge at Lynn was built in 1821 communication between King's Lynn and West Lynn was by ferry, but in 1216 the river that ran out into the Wash by Lynn was the Little Ouse, then a stream of no great volume, and it is very probable that it was easily fordable at low water. At the western end of the road was the estuary of the Wellstream, which, until quite recent times, extended inland nearly to Wisbech, and in 1216 it formed the outlet of all the larger streams then draining the Fen Country. Between Cross Keys and Long Sutton, on the Lincolnshire side, the Wellstream was four and a half miles wide, and at low water there was, even within living memory, a passage over the sands between the two places, across which horses and carriages were conducted by a guide carrying a pole or staff. From Long Sutton another old road again continues westwards.

This direct line from Lynn seems to have been that taken by the king's baggage train.

Before attempting to follow the misfortunes of the train itself it will be well to see what others who have been interested in the question have had to say as to the place of crossing.

The earliest notice I have been able to find in our later writers [a] occurs in the various Latin editions of Camden's *Britannia*, which were all published in his lifetime. In the first edition of 1586, and the later versions down to and including that of 1600, he thus describes "The Washes":

Æstuarium hoc est amplissimum & nobilissimum, intumescente æstu æquis offertum, defervescente, iter sed admodum periculosum præbet, quod Ioannes Rex suo damno didicit.

[a] Shakspeare, in his "King John," written in 1594, makes the Bastard Fauconbridge tell Hubert de Burgo:

"I'll tell thee Hubert half my power this night, passing these flats, are taken by the tide.
These Lincoln-Washes have devoured them, myself, well-mounted have escaped."

(Act v. Scene 6.)

Dum enim bello Baronico hâc iter faceret, subito irruentibus undis, ad Welstreame omnia impedimenta, et regium apparatum amisit, ut author est Matthæus Westmonasteriensis.

In the folio edition of 1607 the words "*Foss-dyle*[a] *&*" are inserted before "Welstreame," and a little further on is this added note:

Nec arenæ Syrticæ desunt quas attrahendi et constringendi vim admirandam habere & pastores & oviculæ subinde suo cum periculo sentiunt.

The above passages are thus translated by Gibson in the edition of 1695:

This Estuary is very large and famous, cover'd with water at every flowing of the tide, and passable again at every ebb, tho' not without danger; as King *John* to his own loss experienc'd: for whilst in the Barons war, he attempted to pass here, he lost all his carriages and furniture near *Foss-dyke* and *Wel-stream*, by a sudden inundation, as Matthew of Westminster tells us. . . . . Here are many quick-sands; and the Shepherds and their flocks are often with great danger made sensible, that they have a wonderful force in sucking in anything that comes upon them, and retaining it fast.

The next important notice occurs in the *Complete History of England*,[b] written by Dr. Robert Brady, and published at London in 1685. Dr. Brady was himself born at Denver, not many miles away from the reputed scene of the disaster. He was also Master of Caius College, Cambridge, and Keeper of the Public Records. His comments are therefore useful as coming from one who was a native of the Fenland district as well as a historian of some repute. His account of the event is taken directly from that of Matthew Paris, which he thus explains in a footnote:

By the *opening of the Earth in the midst of the Floods*, and the *Gulfe* of the *Abysse*. The *Monk* means and describes the *Washes* between the *Cross Keys* in the *Parish* of *Terrington* in *Marshland* in *Norfolk*, and *Fossdike* in *Holland* in *Lincolnshire*, over which at this day *Passengers* and *Travellers* go with *Guides;* and sometimes through the *Ignorance* or *Negligence* of the Guides they miscarry, either by falling into Quicksands; or being taken by the Tide: That is, the Tide coming too fast upon them in their passage, and over-flowing the *Washes*, That they lose their Way and Perish: And this was most certainly the Case with *King John's* Carriages. For this was the nearest way, and most direct passage from *Lin* to the *Cross Keys* and so over the *Washes* to *Fosdike*, from thence to *Sleford* and so to *Newark*, and the most secure from his Enemies, though the passage it self not so safe.

Another notice I will quote is from the Rev. Charles Parkin's account of the

[a] *Sic.* [b] Vol. ii. 516.

Parish of Walpole,[a] in his continuation of Blomefield's *History of Norfolk*, published at Lynn in 1775:

> At a place called *Cross Keys*, in this parish, is a passage over the Washes, at the mouth of the river *Nene*, to *Long Sutton*, in *Lincolnshire*, (when the tide is out, and before its reflux,) for horses and carriages, and King *John* passing over here into *Lincolnshire*, a little time before his death, not observing this, lost most of his baggage, or carriages, by the reflux of the tide.
>
> Here is a guide always attending to conduct passengers over, bearing a wand, or rod in his hand, probably in imitation of *Moses*, who held a rod, when he conducted the Israelites through the *Red Sea*.

It will be seen from these extracts that from at least the middle of the thirteenth century down to 1600 the disaster was described as occurring in the Wellstream. In 1607 Camden, through a wholly unauthorised interpolation, confused the story by making the accident take place also at Fossdyke, which is miles away from the Wellstream on the western side of the Wash. Dr. Brady, though following Camden, gives us the traditional route taken by the train, while Parkin, who writes more positively, once more confines the disaster to the estuary of the Wellstream.

More recent local historians have dealt with the matter from their own standpoint. Thus in Walker and Craddock's *History of Wisbech and the Fens*, published in 1849, the authors, who seem to have been very sceptical as to John's recorded movements, are "inclined to believe that the scene of this historical incident was somewhere near Wisbech, perhaps between Wisbech and Walton Dam, where the estuary branched off to a much greater width."[b]

A still later work, also a *History of Wisbech*, by Mr. F. J. Gardiner, published in 1898, quotes the opinion of a local antiquary, Mr. G. T. Marshall of Tydd, that there was a ford over the Great Ouse or the Wellstream between Walsoken and Wisbech, and that this ford, "say between Newcommon Bridge near Wisbech, and the town, seems the most likely place for King John and his followers to cross to get into Wisbech, and it is here that he most probably met with the great disaster which cost him his life." Mr. Gardiner himself thinks it is "quite certain that this grievous misfortune occurred to King John's army in the immediate neighbourhood of Wisbech, if not actually within the limits of the borough."[c]

[a] Vol. iv. 722, and vol. ix. 121 of the reissue of 1808.

[b] Neil Walker and Thomas Craddock, *The History of Wisbech and the Fens* (Wisbech, 1849), 213.

[c] F. J. Gardiner, *History of Wisbech and Neighbourhood* (Wisbech, 1898), 5, 6.

These local theories are unfortunately of no value whatever, owing to the writers having ignored the plain statement of the chroniclers that John and his army escaped, and that it was the baggage train alone which got into difficulties. They have furthermore overlooked another point of vital consequence, the probable constitution and length of the baggage train itself.

John and his officers and attendants, and so much of the army as accompanied him, were of course all mounted men, and at the rate at which the king was wont to ride, often ranging, as it must have done, up to thirty and forty and even fifty miles a day, the horses could not have carried anything except their riders, and any led horses would only have been lightly laden with such necessaries as food and forage.

The whole of the baggage, consisting of sumpter horses, wagons, and carts carrying the tents and tent furniture, the heavier military equipment and ammunition, and other engines of war, the treasure-chests, the king's wardrobe and chapel, and all the other *impedimenta* of a considerable army, had therefore to follow the king at such a rate as was possible.

On the occasion under notice the baggage train, whatever its length, must have been largely increased by the spoil and loot accumulated during the ravaging of East Anglia by John's mercenaries.

We unfortunately have not any data upon which to base any calculation as to the number of John's army or the probable amount of baggage that accompanied it, but two Fellows of the Society have been good enough to favour me with their opinions on these points. Professor Oman does not think that the knights and crossbowmen who made up the army would have exceeded 2,000 or 3,000 strong. Major William Anstruther-Gray reckons that an army of 3,000 men would be followed by a baggage train quite two miles long, not capable of moving faster than two and a half miles an hour.

Even if these estimates be regarded as somewhat liberal, it is clear that any crossing of the Wellstream at a place of insufficient width to involve the whole length of the baggage train must at once, if we are to believe the chroniclers, be ruled out of court.

Notwithstanding, then, these local claims, it will be seen that the Cross Keys passage, to which tradition has always pointed, and that alone, is the only likely place where the great disaster could have occurred.

We have next to consider the various circumstances that led to the disaster itself.

The first question that arises is, what were the times of high and low water

in the Wash on the date under notice, which was apparently the 12th of October, 1216?

Mr. Clement Reid has been good enough to work this out for me as follows:

Sunrise - - -		6.20 a.m.
Low water -	about	12 noon.
High water -	about	6 p.m.
Sunset - - -		5.15 p.m.
New moon -	about	11 p.m.

Through the kind help of Mr. W. H. Wesley, of the Royal Astronomical Society, the time of low water has been independently calculated by Mr. Edward Roberts of the Nautical Almanac Office, to whom I am indebted for the following note:

. . . . *Now* it is high water at full and change at 6 h. 0 m. at Longsand Lynn Deep and 7 h. 30 m. at Wisbeach.

It is probable that the tide has not varied much since 1216 on the *open* coast. Assuming this to be the case it would be high water on Oct. 12, 1216, at about 6.30 p.m. and low water about noon, and on Oct. 8,[a] 1216, at about 3.30 p.m. and low water about 9 a.m. on the Wash.

The highest or spring tides would be those about Oct. 14, and at these times the *largest* amount of sand would be uncovered and *most favourable* for crossing, whilst about Oct. 7 the least amount; being neap tides. From this it would appear that Oct. 12 would have been the best time for crossing under *normal* weather. I assume the crossing took place in daylight.

The train most probably left Lynn about midday on the 11th, when the river there could easily have been crossed, and probably at the same time that the king and his company were starting to ride to Wisbech. It may then have gone straight on to Cross Keys, but at such a pace as it would have travelled the leaders could not have reached the estuary until within an hour or so of high water, when all that could be done was to wait till morning. It is therefore equally likely, that after crossing the river at Lynn, which it must have done, the train was halted at that end of the line ready to start early next morning. So long as the wagons and other baggage were safe across the river there would be

[a] That is, on the date when King John crossed over from Lincolnshire to King's Lynn.

no difficulty about the men in charge being ferried over at any state of the tide, or the train reaching Cross Keys in time for the passage of the Wellstream.

If the train left Lynn at sunrise the head of the column would have reached Cross Keys, which is about seven and a half miles from West Lynn, about ten o'clock, or a little after half tide. It should then have waited until noon, when it was dead low water, as there was not only the estuary to be crossed but the tidal channel of the Wellstream to be forded.

But Mr. Clement Reid, who knows the district well, has pointed out to me that in October the fenland roads are very bad, and a low mist commonly hangs over the fens for at least an hour after sunrise. If therefore the start was delayed till eight o'clock, as he suggests may have been the case, to allow for loading, breakfast, and for the fog to disperse, there was no margin of safety should anything happen to delay the train. Long before the return half-tide, 3 p.m., the river would be unfordable, and if the train reached its channel at 2 p.m. just too late for the crossing, there would be only an hour available during which to turn and extricate the heavy vehicles, before the crossing would be flooded and the track hidden.

So far as I have been able to learn, even in recent times there was no laid track or causeway across the estuary, but, as we have seen, the passage was made under the direction of a guide, who was no doubt fully aware of its dangers, and able to choose a safe path over the sands with the help of landmarks.

Now the chroniclers are explicit as to the manner in which the men in charge of the train began their passage. The Coggeshall writer says "they incautiously and precipitantly pressed on before the tide had receded," and Matthew Paris that they "ventured to cross without a guide."

Possibly the leaders had orders to join the king at Long Sutton as he rode north from Wisbech, and it is by no means improbable that John himself there impatiently awaited their coming.

The falling tide having left the estuary dry for some distance from the bank, it is very likely that a number of wagons and pack horses attempting to cross hurriedly without a guide would no longer keep to the single or double file dictated by a narrow country road, but on reaching the sands spread out in wider order. So long as the sands were firm all would be well, but a point must soon have been reached where the outspread waters of the Wellstream still covered the passage. Here would begin the great danger that a guide might have avoided, the quicksands which are still the terror of the Wash. If once the leading horses and vehicles got involved the fate of the train was sealed. The vanguard would

quickly become a struggling and shouting mass of men trying to extricate themselves and their charges, or to turn back, while the rest of the train would block the retreat and the rearguard continue to press on until halted by the horrible confusion ahead. Meanwhile carts and wagons, horses and men, would settle deeper and deeper into the quicksands, and any possible margin of time in which to effect a safe crossing would quickly pass. The turning of the tide would mean, too, the conversion into quicksands of much of the dry bed already traversed, and in them the rest of the hapless train would also become involved and so eventually perish.

If he did not go round by Wisbech the king may have made the passage himself a few days before on his journey from Spalding to Lynn,[a] but where an impetuous rider may cross in safety a slowly moving cart will often sink into a quicksand, and this in part may have been the cause of the catastrophe.

Roger of Wendover declares that not a man escaped to tell the king of the disaster, but the Coggeshall chronicler states more cautiously only that "many of the king's household" were drowned by the incoming tide or swallowed up by the quicksands. Both, however, are agreed as to the total loss of the train.

In any case the king must by some means have known quickly of the disaster, and it is by no means improbable that he himself witnessed it while awaiting the landing of the train on the Lincolnshire side. He and they who were with him may even have ridden out part way with the view of guiding the leaders or helping them out of their difficulties, but being threatened by the rising tide, themselves "barely escaped," as the chroniclers assert.

Whether the whole or only part of the men who accompanied the train perished is not a question that need further be pursued, nor is it necessary to discuss any alternative ways in which the disaster may have happened, but the undoubted fate of the wagons and sumpter horses suggests other considerations, and we have first to ask ourselves what would happen when they were abandoned to the rising tide. I think there can be little doubt that vehicles that had become involved in quicksands would go on sinking and eventually disappear in them. Such of the pack animals as were similarly entangled would likewise be engulfed, and with them their burdens. And whatever was swallowed up in the quicksands would continue to sink more and more slowly until a firmer stratum was reached. Some of the lighter vehicles may have been washed up stream by the tide, as well

[a] On the 8th October it would have been low water in the Wellstream estuary about 9 a.m. and a little later on the following day.

as any animals that had escaped being caught in the sands. But the greater part of the train, consisting of heavily-laden carts and horses, must have sunk as I have ventured to suggest. It is also more than probable that where they sank there they are still, and if they be there why should they not be sought for?

To begin with, what I have suggested as the line of the crossing, and consequently the approximate site of the accident, is no longer at any time under water.

On the Lincolnshire side a broad tract of land all round the north and east coasts of the district called South Holland had begun to be reclaimed as marsh for some considerable time before the seventeenth century, and the map in Sir William Dugdale's *History of Imbanking*,[a] published in 1662, shows that the marsh then extended eastwards from Long Sutton more than half-way across the old passage from Cross Keys.

On the Norfolk side, where the thirteenth-century limits of the estuary are defined, as they are also on the Lincolnshire side, by the sea wall or *vallum* attributed to the Romans, which gives name to Walsoken, Walton, and the Walpoles, systematic embanking was begun in 1721, and by 1783 had already included a narrow strip of the foreshore as far as Cross Keys. In 1830, after sundry failures, the river Nene, as the old Wellstream is now called, was finally restricted to a definite channel against the Lincolnshire border, and the sea was further shut out by an embankment across the estuary between Sutton Marsh and Cross Keys. Upon this embankment a road was made connecting Lincolnshire with Norfolk, and so the Cross Keys passage ceased to be used. By means of other embankments to the north more ground was reclaimed from the sea in 1846, and the site of the Wellstream disaster then became dry land.

At the point where the river Nene traverses the 1830 embankment, the road is carried over the stream by a bridge, and here a village called after it "Sutton Bridge" has since come into being. On the south side of the embankment there now runs, and like it parallel with the old crossing, the Midland and Great Northern Railway from Spalding into Norfolk, from which there is a branch line southwards to Wisbech from Sutton Bridge, on the Lincolnshire side of the Nene.

An important point which has not yet been raised is the probable line of the river channel in 1216.

As the whole of the train is said to have been lost, it must have got well on to the crossing and therefore some distance from the Norfolk bank; consequently

[a] See *The History of Imbanking and Draining of divers Fens and Marshes* (London, 1662), 219.

the leading horses and vehicles, supposing the train had maintained any semblance of its original order, would have arrived within two miles of Long Sutton. The river channel must therefore have been nearer the Lincolnshire bank. Since Sutton Bridge is nearly half-way between Long Sutton and Cross Keys, it cannot be very far from the actual site of the great catastrophe, and beneath the fields east and west of it probably lie the sunken baggage wagons of King John's army.

The next question that arises is, what are the nature and depth of the strata round Sutton Bridge?

Learning a short time ago that a new railway bridge had lately been made at Sutton Bridge, I inquired of the Great Northern Railway, which now works the line, if anything was known as to the old crossing or of the nature of the subsoil in the district. In reply I received the following:

The Great Northern Railway,
Engineer's Office,
King's Cross, London, N.,
30th December, 1901.

Dear Sir,

Great Northern Railway between Long Sutton and Cross Keys.

In reply to your letter of the 17th instant, I have made enquiry of one of my assistants who has always lived in this locality, and he reports as follows:

"I regret that I am not in a position to throw any light on the subject raised by Mr. W. H. St. John Hope. The line between Long Sutton and Cross Keys (or Sutton Bridge) was made by the old Norwich and Spalding Company, and when it became Great Northern the plans were not transferred. The line is about an eighth of a mile to the south-west of the passage or wash-way referred to, and it is not likely that the latter would be interfered with at its construction. Judging from a similar road over the sands across the estuary of the Welland a little further to the north which was in existence not so many years ago, I should imagine that there was no laid track or corduroy road across the estuary of the Nene. That over the Welland was without one, and the sands are alike in both cases; in addition, if there had been one, traces of it would have come to light at various times and remained among local traditions, but I have never heard of such traditions, and I have known the district thoroughly almost since childhood, and my impression is that the subsoil is silt to a great depth."

Yours faithfully,

A. ROSS.

In reply to a further inquiry as to what had been found during the construction of the new railway swing bridge over the river at Sutton Bridge in

1887, Mr. Ross referred me to the Midland Railway Company, whose engineer, Mr. J. Allen McDonald, has obligingly furnished me with a section of the whole of the strata passed through in making the bridge. On the west side the cylinders that carried the pivoted section of the bridge were driven down to a depth of 56·56 feet below Ordnance Datum, and those on the eastern side, 70 feet away, to a depth of 55·15 feet. Above the Datum level is a considerable bed of silt and clay which extends to 4 feet below Datum, and then continues as silt only for a further depth of 19½ feet. Under this is a bed of sand and shells 9 feet thick; then about 3½ feet of loamy sand, which rests at a depth of about 32 feet from Ordnance Datum on a bed some 5½ feet thick of "ballast with shells."[a]

The Nene has now excavated for itself at the bridge a channel 240 feet wide and 27 feet deep at low water, but before it was confined within banks the mere fact that it was fordable when the tide was out proves that while it could shift its course about the estuary it was of no great depth. It is consequently unlikely that anything that once was engulfed in the quicksands has been washed out of them since.

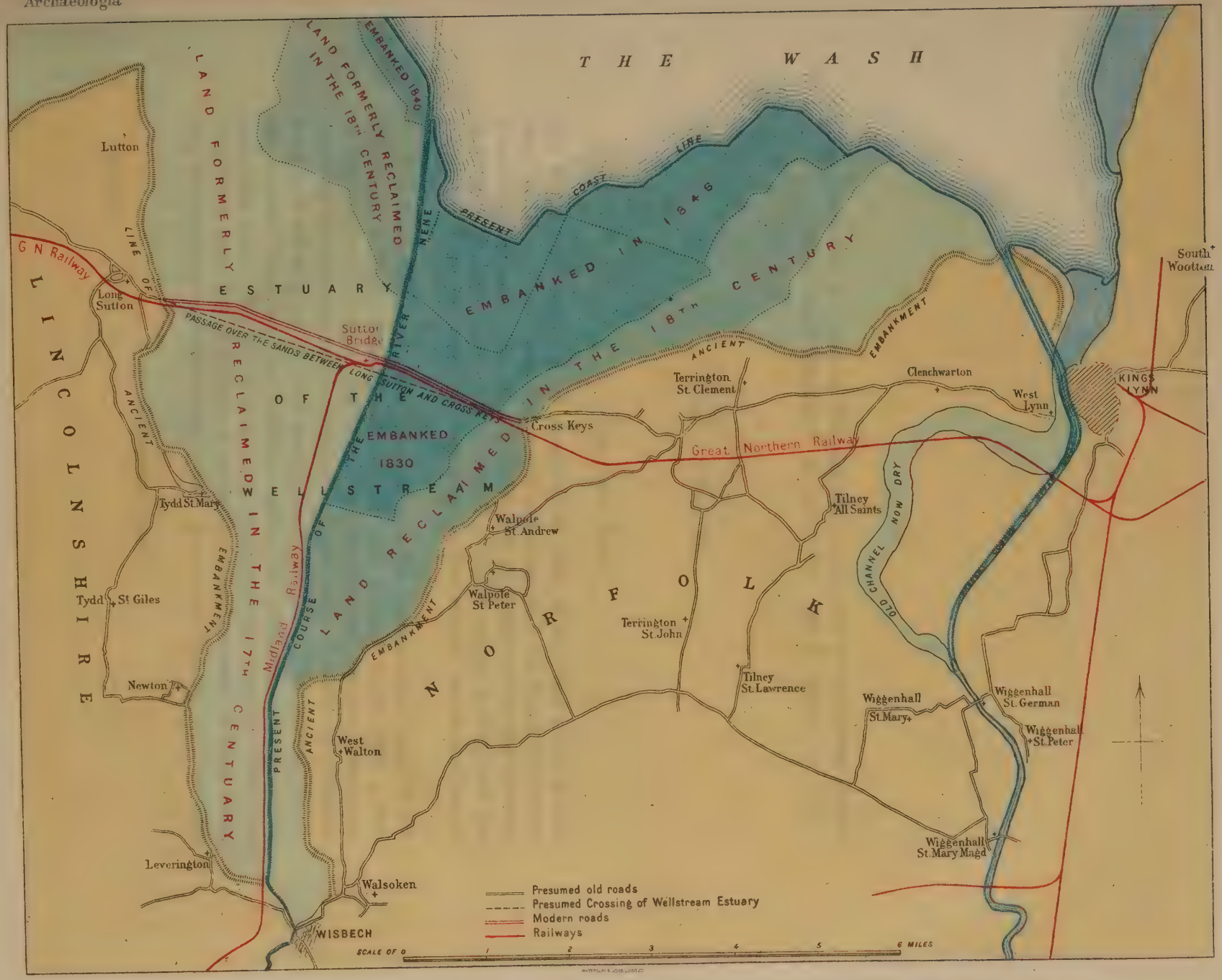
How far it would be practicable to sink shafts over a considerable area in search of the remains of a thirteenth-century baggage train laden with loot and spoil I am not prepared to say, but in view of the great interest and value attaching to whatever might be found, it would be worth while at any rate to make a trial attempt.

The section of the strata at Sutton Bridge is not likely to differ much for some distance round it, there is consequently a thickness of some 23 feet of silt below Ordnance Datum into which the objects could have sunk. Whether their downward course would have been arrested before or by the 9-foot bed of sand and shells below, or whether they would have continued sinking through this and the underlying beds until stopped by the ballast bed at 32 feet from Ordnance Datum, are questions which I must leave to others to discuss.

[a] Under this again are

	Feet.	Inches.
Loamy clay and peat	3	6
Fine red ballast mixed with clay	3	6
Blue and grey clay mixed with sand	5	9
Ballast	1	0
Silty sand	4	6
Ballast with flint and stones	1	6

resting on stiff grey clay of unascertained thickness.



CONJECTURAL MAP OF THE COUNTRY BETWEEN LYNN AND LONG SUTTON IN 1216.

Published by the Society of Antiquaries of London, 1906.

VII.—*Excavations at Caerwent, Monmouthshire, on the Site of the Romano-British City of Venta Silurum, in the year* 1905. *By* T. Ashby, *Jun., Esq., D.Litt., F.S.A.*

Read 17th May, 1906.

I.—The South Gate.

The South Gate could not be excavated in 1904 at the time when Houses Nos. X-XIII were laid bare, owing to the existence of a fine walnut tree which it was then impossible to remove. Permission to cut down the tree was, however, kindly given by the trustees of the late Mr. John Lysaght, in 1905, and the uncovering of the South Gate was therefore the first piece of work undertaken in that year.

The South Gate is closely similar in plan and in measurements to the North Gate,[a] with a single opening, and internal and external arches with a flat-roofed space between them; but it exhibits this difference, that the piers are not flush with the wall outside, but project considerably from it, while the projection inwards is not so great as in the case of the North Gate. The plans, elevations, and sections, which are here published together for comparison (figs. 1, 2), will make this clear. The filling is far more systematic, and does not show that evidence of haste and of the use of the first materials that came to hand, which may be seen in the case of the North Gate. It is, on the contrary, well mortared

[a] *Archaeologia*, lix. 87-97.

in, and well faced on the inside with small stones, like those used on the outside of the city wall.[a]

The filling is traversed by a box drain, 1 foot 3 inches in width and 1 foot

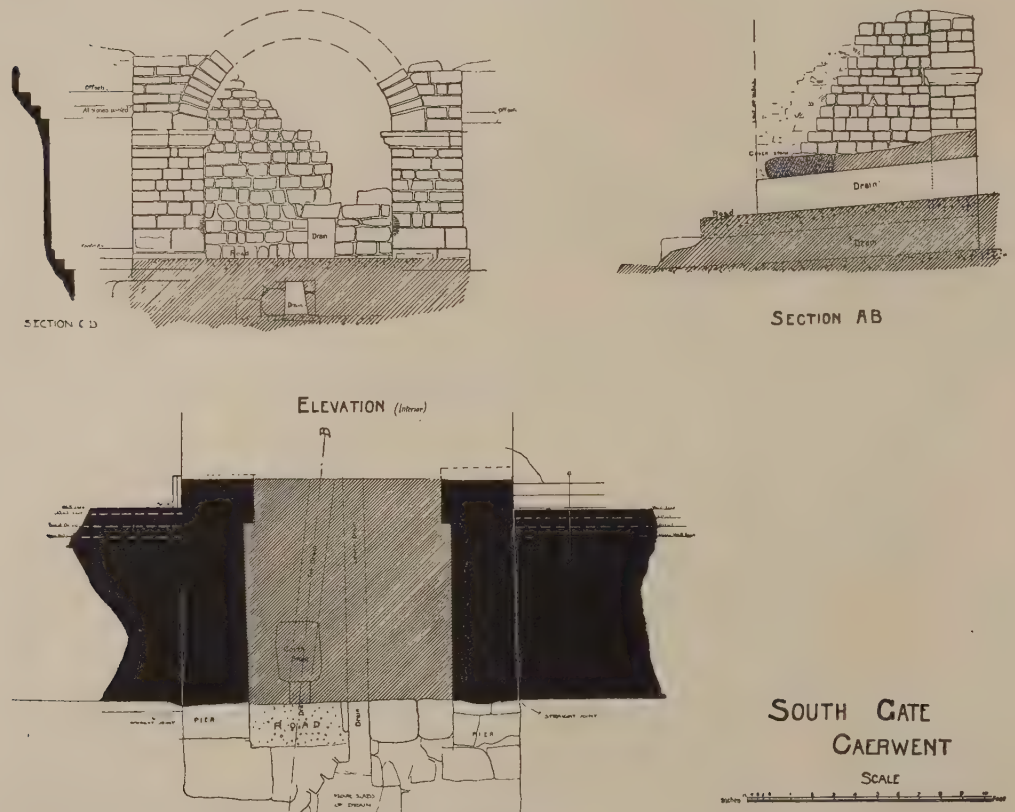


Fig. 1.

9 inches in height, roofed with large covering slabs, which runs slightly askew to the axis of the gate. It must have been left for the drainage of the accumulation

[a] From the evidence of coins it must be attributed, at earliest, to the time of Valentinian I., one of whose coins was found 4 feet below grass level, 12 feet north of the east pier of the gate. A coin of Helena was also found here, and one of Constantine the Great, 7 feet below grass level, 5 feet north of the west pier; and on the road level, 15 feet north of this pier, a coin with the legend URBS ROMA.

of earth[a] which was formed after the gate had been filled in, but it is curious that no definite drain channel leading to it could be found, though there was some darker soil in front of it. Its floor is the roadway which passed through the gate, 5 feet 8½ inches below the bottom of the impost. This roadway has a bed of stones, with iron slag and clinkers intermixed, 1 foot 5 inches thick, and then hard marly stuff with stones for 5 inches more.[b] Where it rests on the mound (see

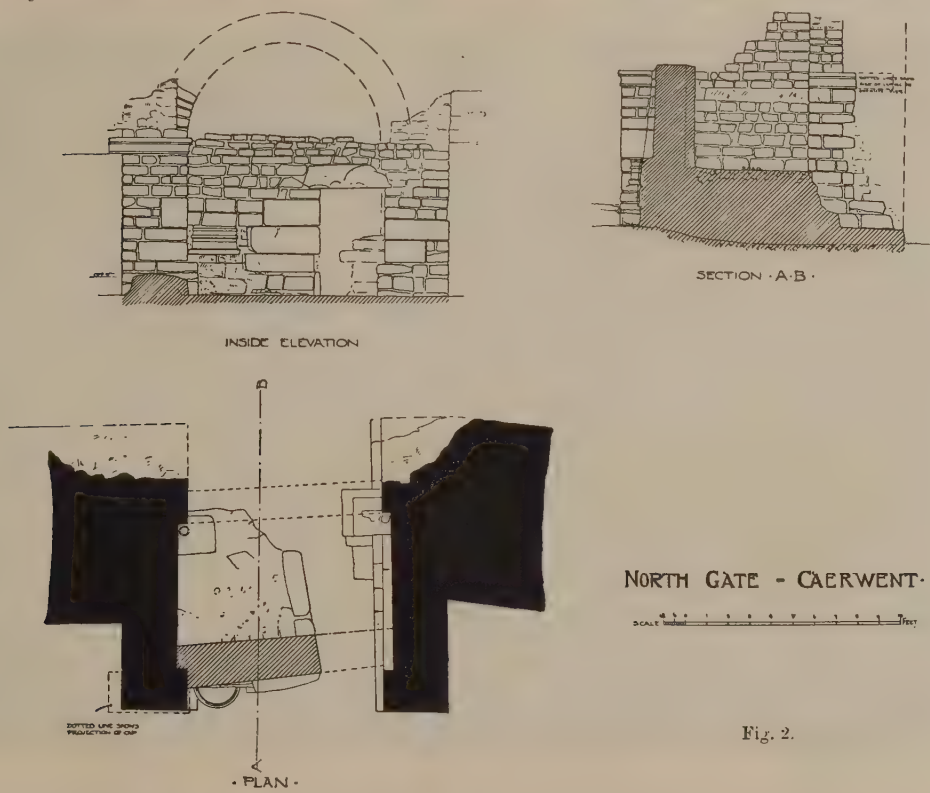


Fig. 2.

below) it is only 1 foot 6 inches thick. It falls 7 inches in passing through the gateway, as measured through the upper drain.

Below the roadway is another drain, also a box drain, 1 foot 7 inches high and 11 inches wide, which again cannot be traced further north; and, though it

[a] In this accumulation (no doubt rubbish thrown in) a considerable number of small whelk, oyster, and mussel shells were found, also some charcoal, some of the earth showing traces of burning.

[b] It was no doubt this layer that was taken to be an "earlier road level" in 1904. (*Archaeologia*, lix. 310.)

was right under the solid roadbed, *i.e.* it had not been touched when the gate was filled, a flat slab of stone was found blocking it up at the north end. The earth in it was examined, but was not found to contain anything of importance.

The South Gate occupied the same position as an earlier opening in the *enceinte* formed by the mound. This is clear from the discovery, on the west side of the road, of the extremity of the mound sloping away in all directions.

Fig. 3. External view of the South Gate.

A clearing across the roadway in front of the drain produced four second brasses, one of Commodus (not very fresh), the rest illegible, and the slope of the mound was apparently reached under the road. This was also seen 4 feet 3 inches below the footing of the west pier, going under the wall, and this would correspond with the slope of the extremity of it, on the west of the road a little further north. Attempts to find it outside the gate, however, were unsuccessful. The road cannot be traced either, as the field has been brought down to well below the Roman level, the foundations of the wall being

exposed. The soil has probably gone to fill the ditch, which we may presume to have existed on this side also.

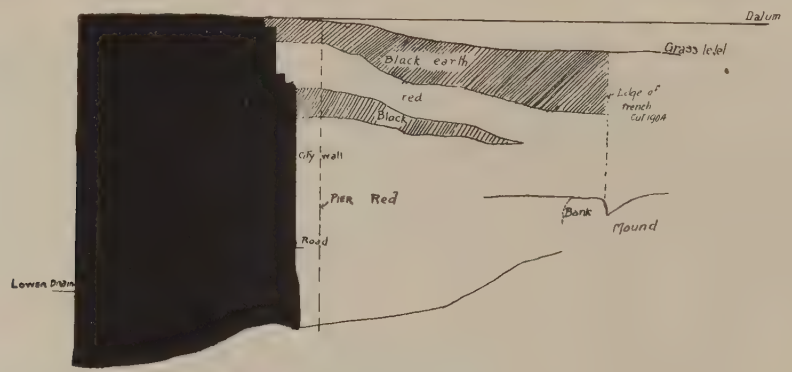
The pointing is good in the east pier at the top, but nowhere else. The rest of the pier, and the whole of the west pier, are somewhat roughly constructed. The imposts are in two parts, which, on the west pier, do not correspond perfectly with one another. The lower blocks of each pier are large, and show slight "rustication," and there appear to be traces of axle marks upon them on the inner side.

Fig. 4. Internal view of the South Gate.

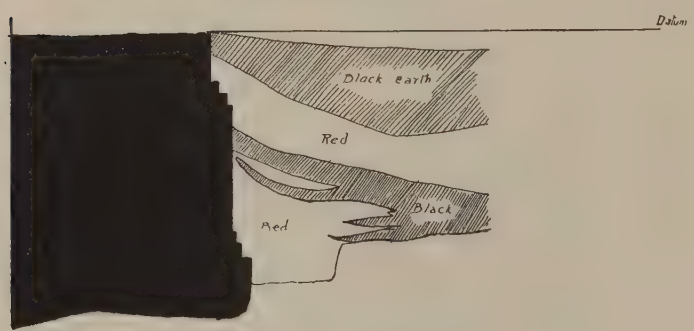
It must be noted that the imposts stop flush with the outer angles of the piers, and their mouldings are not continued round the outer sides, and that the angles where the piers join the wall are quite rough, especially on the west side. This is due to the fact that the city wall was an embanking wall, and did not stand free on the inside; and the same state of things may be observed at the North Gate. The profile of the bank of red earth which comes against it may be clearly seen on each side of the gate, and is marked by a layer of black earth

above it. (Fig. 5.) It terminates somewhat abruptly in a little bank towards the road, which, like those passing out of the other gates, must have run through a kind of cutting, owing to the fact that the level within the walls was (and is) considerably higher than outside.

The loose voussoirs from the inner arch were all found fairly high up, a fact which seems to indicate that this arch had collapsed comparatively recently,



Section west of South Gate.



Section on east of South Gate.

Fig. 5.

and had been much damaged when the walnut tree was put in (about 70 years ago, perhaps), for no less than 16 voussoirs were found in its roots. The outer arch, on the other hand, had probably fallen long before, with the piers which supported it.[a]

[a] A worn halfpenny of George III. dated 1805 was found 2 feet below grass level under the tree.

By the west pier, 1 foot below the top of the impost, was found a small altar of sandstone 1 foot 6 inches by 8 by 7½ inches, without inscription. (Plate XVIII. fig. 1.)

Two feet below the grass level, and 4 feet to the north of the pier, a sandstone block with moulding, measuring 1 foot 10 inches by 1 foot 6 inches by 6½ inches thick, was found. (Plate XVIII. fig. 4.) Some way further north, 2 feet 6 inches down, another block 1 foot 10 inches by 1 foot 6 inches by 7½ inches thick, but with a different moulding, was found. (Plate XVIII. fig. 8.) Both these may have come from the upper part of the gate, and to this would also belong the roofing tiles, mostly of old red sandstone, which have been found in the course of the excavations.

The set-offs in the main wall are quite different on the two sides of the gate, and it is clear, from the continuance of the pointing at the top of the east pier where the wall comes up to it, that the east pier was built before the wall. The west pier, on the other hand, seems to be bonded in on the inside, though not on the outside. The difference in time is no doubt only a matter of days, showing that the work was begun by different gangs of workmen at different places. Another indication of this is the fact that the offsets on the inner side of the wall are quite different to the east and west of the gate respectively.

Fifteen feet to the west of the gate is a counterfort,[a] 13 feet 3 inches in width, projecting inwards about 1 foot 5 inches to 2 feet 6 inches. It is of bad construction, with large interstices and roughly laid blocks; its style is hardly inferior to that of the city wall, and it seems to be bonded in at both ends, though the offsets of the wall are the same on each side of it. It has itself no offsets; an apparent one, 12 feet 2 inches from the top of it (as preserved) is due to the giving of the foundations.

II.—Houses Nos. XII N-XV N.

The rest of the work of the season of 1905 was devoted to the exploration of a section of Lord Tredegar's property, which had not yet been attacked, lying to the north, north-east, and east of Houses Nos. IX N, X N, XI N, the site of which is now occupied by the playground of the village school, and to the south of Houses Nos. IV N and III N.

[a] This was not discovered in time to be shown on the plan in *Archaeologia*, lix. pl. lxvi.

House No. IX N.

A slight addition has to be made to the plan of this house.[a] (Plate XVII.) Immediately to the west of the north-west angle of the court is a large entrance with double doors; the socket stones are still preserved, with fragments of the iron socket itself in that on the east, and the arrangement is similar to that of Houses Nos. III N, XIII N, and XIII. The width is 8 feet 6 inches from socket hole to socket hole.

To the west of this gateway a wall runs on almost to the west boundary of the field, with no return southwards, though this may of course be hidden beneath the modern road.

House No. XII N.

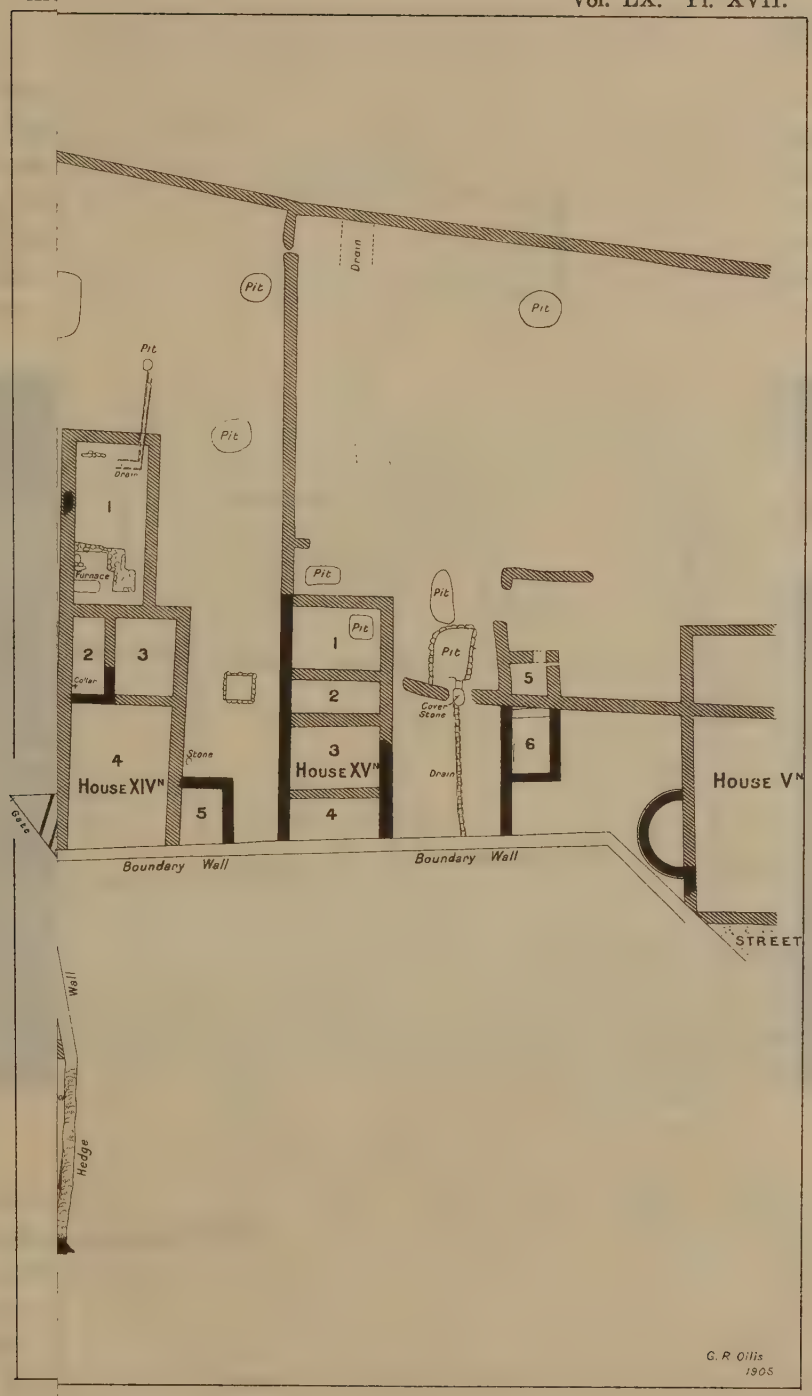
A comparison between the plan now published (Plate XVII.) and that in *Archaeologia*, LIX. Plate IX., will show that the east wall of this building falls into the same straight line as the east wall of that which we have called House No. II N.; and it is not at all improbable that we have here in reality only two parts of one large edifice, perhaps a set of baths. Until, however, it has been possible to verify this supposition by excavation (and the intervening space has not as yet come into our hands) it will probably be safer to treat the two separately, though no attempt has been made to number the rooms of this southern portion.

To the extreme west, at the entrance into the field, two short stretches of wall have been found, which cannot be followed either to the north or the south, as their extremities pass beyond the boundaries of Lord Tredegar's property. The easternmost of the two seems to terminate at the north end of a doorway, though no respond is visible; to the south of it, as well as between the two walls, is a concrete floor, 2 feet below the modern grass level, 6 inches in thickness, with pitching 6 inches below it again.

The space to the east of these walls appears to have been a courtyard, and had a concrete floor also.

Into it projects a square building of extremely solid construction, and, on the sides which are visible, entirely isolated, except for much ruined fragments of

[a] *Archaeologia*, lix. 113, fig. 11.


Drain
Pit
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Pit
Pit
Drain
Furnace
1
2
3
Cover Stone
4
HOUSE XIV^N
Stone
5
1
2
3
HOUSE XV^N
4
Cover Stone
Drain
5
6
HOUSE V^N
Gate
Boundary Wall
Boundary Wall
STREET
Well
Hedge
G. R. Ollis
1905

XVI^N

foundation on its west and east sides, which are, however, of later date than the building itself. Its outer walls are coated with white plaster splotched with red, an interesting instance of external decoration, and on the west wall are scratchings in the plaster: units, represented by vertical lines about 2 inches high, and tens represented by longer lines about 1 foot in height. (Fig. 6.) There is no indication of the object for which this tally was kept. The number reached amounts to 122; the second hundred has been begun a little higher up. The

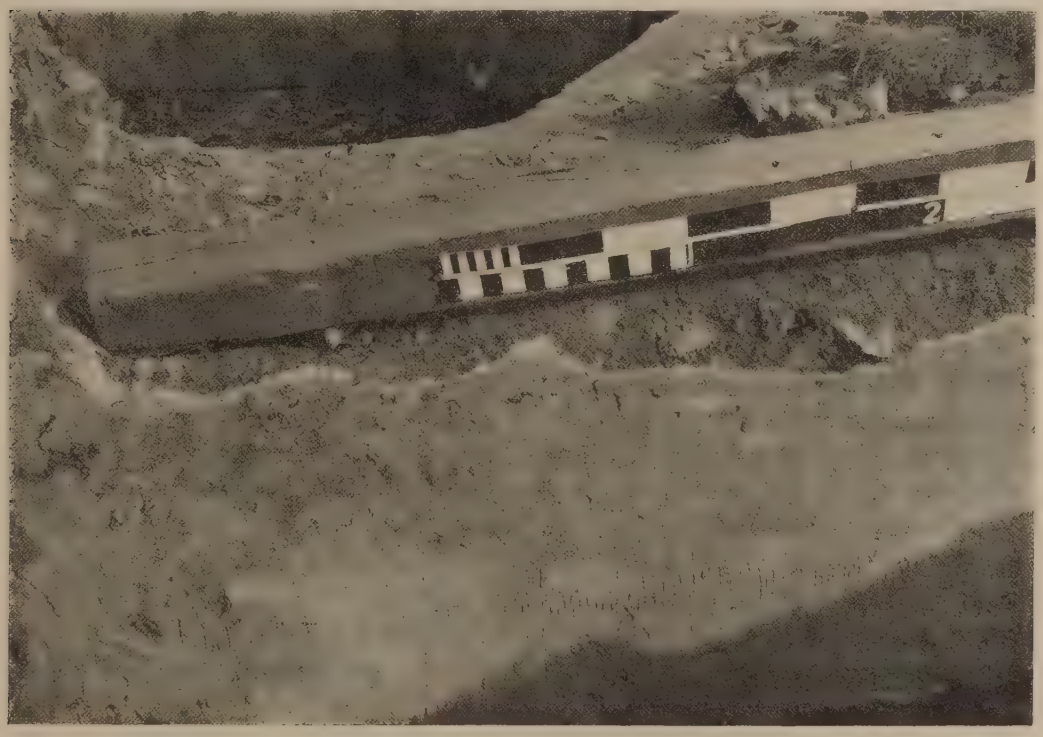


Fig. 6. Inscribed plaster in House No. XII N.

interior is octagonal, the sides being of almost equal length (4 feet 4 inches); the octagon is, however, not quite regularly set in the square. It is lined with a very hard cement, 1½ inch thick, in which small fragments of brick are largely present, and well calculated to hold water. At the foot of the walls is a quarter round moulding.

The floor was paved with mosaic: first, 16 rows of brown *tesserae* 1 inch

square, then 27 rows of smaller white *tesserae*. The middle is entirely gone, and may have been removed by previous explorers; for the *débris* within has all the appearance of having been moved comparatively recently,[a] and few finds of Roman objects were made within it. In the rubbish near the floor, 4 feet below grass level, were four or five pieces of red pottery with green or yellow glaze. But one Roman coin and some black pottery were also found.

The walls are preserved to a height of 3 feet 8 inches, and the entrance, no doubt by steps, must have been on the north side. The building must, one would suppose, have been a bath; an irregular hole which may have served for the egress of the waste water (though it has been enlarged later) is to be seen on the west side.

The orientation disagrees somewhat with that of the rest of the building, and is not quite in accord even with that of the walls forming an angle a little to the east; but the explanation of these divergences cannot be given until the exploration of the garden to the north is possible.

The walls enclosing the open yard in which this building lies on the south and east seem to be of earlier date than those further to the east of them, as may be seen at the south-east angle of the yard, which has a floor of mortar (perished) 1 foot 9 inches below grass level, where the south wall of the eastern portion of the building curves in irregularly to join the pre-existing wall.

Very little can be made of the arrangements of this portion of the building. It appears to be a large courtyard, in the middle of which is a rectangular block of rooms, with an apse projecting from each side of it, though the two apses are not opposite to one another; for it seems clear that the major axis runs from north to south, a further argument for its connection with House No. II N. There seem indeed to be no traces of its being accessible from the south side.

In the middle portion of it are traces of earlier foundations, the position of which seems to make it clear that the apse on the east forms no part of the original plan; and indeed on its north side there is a small piece of straight walling which runs immediately under it, and just to the north of that a fragment of foundation wall parallel to it. The western apse, too, looks like an afterthought, to judge by the way in which its south angle joins the other walls.

The southern portion of this rectangular structure contains near its south wall

[a] The following reasons may be adduced: (1) it is full of loose stones; (2) there are pieces of modern pottery at various depths; (3) the greater part of the paving has gone, but yet there are few loose *tesserae* to be found; and (4) the modern boundary wall above the portion not now excavated has at some time been removed.

many old red sandstone *tesserae*, none of them *in situ*; a concrete floor with quarter round moulding, preserved in the rest of the room, seems to be rather a floor than a bedding for mosaic. There were apparently two other floor levels traceable below this. The *tesserae*, it may be noticed, lie irregularly both above and below this floor level, which at this point has either subsided or been broken away, as though they had been thrown in at random. There is a small piece of red plaster *in situ* on the east wall.

The middle portion has no floor preserved, but it is clear from the level given by a fragment of a threshold on the east side that the wall traversing it from north to south cannot have continued to exist in its later state. Concrete floors at the earlier level may be observed on both sides of this wall. The northern portion has a concrete floor 5 inches thick, resting upon the remains of an earlier wall parallel to its north wall. There was apparently another room with a concrete floor at a slightly higher level just to the west of it; this floor rests upon an earlier wall, upon which a small portion of red plaster may still be seen, and slopes from east to west.

In the south-east angle of the building is a trapezoidal room, entered from the north only, and to the north of it again an unroofed space into which projects the eastern apse. This space is entered by a doorway from the street leading to the north gate. The sandstone threshold, measuring 6 feet by 1 foot 8 inches, is still *in situ*. The space is pitched, the pitching resting on a hard gravel concrete bed about 1 foot in depth, and against the threshold is a very solid foundation of mortared stones, the existence of which made us suspect a pit beneath. This did not as a fact prove to be there, but in the soft ground to the north of the foundation, which is about 3 feet in depth, a considerable amount of bones of cattle, all split for marrow, and a boar's tusk, were found[a] and also some interesting small objects, including a clay statuette of Venus (at a depth of 3 feet 9 inches below grass level, *i.e.* at about the level of the bottom of the foundation) of the same type, and indeed, very likely, from the same mould as one in the Guildhall Museum.[b] Other specimens of these statuettes which appear to have

[a] Mr. E. T. Newton, to whom some of the bones were submitted for examination, reports that "many of these bones were clearly portions of a small ox, about the size of *Bos longifrons*. The whole contents of the box may have belonged to this species. All the bones were much broken, even the limb bones being in fragments, ... indicating that the flesh and marrow had been used for food."

[b] *Catalogue of the Collection of London Antiquities in the Guildhall Museum*, p. 71, No. 33, and pl. xv. 2.

been largely manufactured in the Allier valley in Gaul, whence they were imported to Britain, have been found at Carlisle, Richborough, Canterbury, Chesterford, Colchester, York, and Silchester. They are assigned by M. Déchelette to the first half of the first century A.D.[a]

A little to the north an earth drain, 15 inches in width, and 13 inches in depth (probably of very late date), passes through the east wall of the building and across the road. We have just been able to reach a cross-wall going west from the eastern wall of this building, and just north of it a large block of freestone has been built into the wall. Close to this stone a silver coin of Antoninus Pius was found 5 feet down. The road just outside shows four different surfaces, possibly only successive layers: the first cobbles, the rest gravel, giving a total thickness of 2 feet 5 inches. The street from the north gate is about 12 feet in width, the same as the width of the street going at right angles to it, between Houses Nos. XII N and IX N, at its narrowest point. A base was found in taking a section across it, 6 inches below grass level. (Plate XVIII. fig. 5.) On its east side runs a drain excavated in the earth, about 1 foot wide by 9 inches deep, west of the south wall of House No. XIII N, and wider further north. Above it is a layer of stone débris about 2 feet 6 inches deep.

One is half inclined to think that this marks the line of the lost west wall of the courtyard of House No. XIII N, but the fact that it can be traced going under the road-bed opposite the entrance into House No. XII N militates against this supposition.

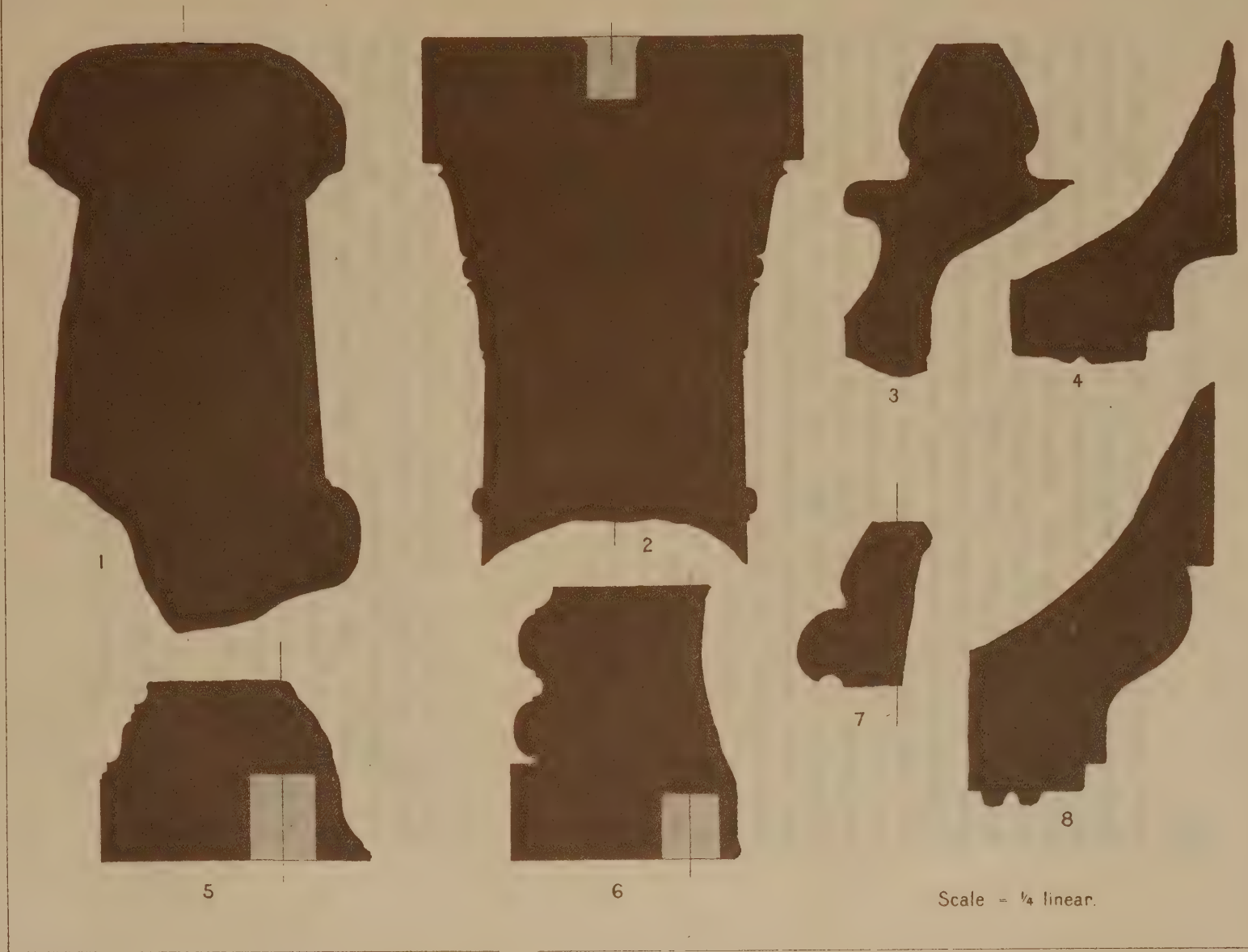
Near the south-west angle of House No. IV N an iron collar, $3\frac{1}{2}$ inches in diameter and $1\frac{1}{4}$ inch wide, was found 6 feet below the ground level on the line of this drain; but no others were discovered in it until we get to the east of House No. IX N.[b]

Further south, nearly opposite, a remarkable fragment of bronze was found, apparently the handle of a vessel.

To the east of this drain is a well, lined with stonework to within 2 feet of the bottom, which was found to be 19 feet 6 inches below the grass level. The last two feet were taken through the clay, and at the bottom was hard gravel. The water came in from 11 feet down, but in a small quantity. The well was 2 feet 6 inches in diameter at the mouth; at 15 feet down its diameters were

[a] See Roach Smith, *Collectanea Antiqua*, vi. 48-75; *Transactions of the Cumberland and Westmorland Antiquarian and Archæological Society*, xv. 504-505; *Revue Archéologique*, 3rd series, xxxviii. 386-391.

[b] See *Archaeologia*, lix. 93.



C.F. KELL & SON, PHOTO LITHO

CAERWENT.—ARCHITECTURAL FRAGMENTS FOUND IN 1905

Published [illegible]

3 feet and 3 feet 3 inches, but it closed in gradually towards the bottom, where it measured from 2 feet 4 inches to 2 feet 8 inches. A considerable quantity of cows' bones, with several skulls, was found right through, especially in the last 9 feet, and also some fragments of shoe leather. The mud from the bottom of the well contained a considerable number of seeds, kindly extracted by Mr. A. H. Lyell, F.S.A., and examined by Mr. Clement Reid, F.R.S , among which may be noted as especially interesting the star thistle (*Centaurea calcitrapa*) and vervain (*Verbena officinalis*). The former is a very local plant in Britain, and is often considered a doubtful native; whilst the vervain, much used in magic, has not before been found, and our earliest record till now was contained in the herbals. A few small bones were also found, including those of mouse, frog, hare, dog, roebuck, and sheep, and the skull of a large dog. Five dogs' skulls were found in the well to the east of House No. VIII N, but were somewhat smaller and less slender: and they differed so much in size and proportions that Mr. E. T. Newton is inclined to suppose that they represent at least three or four distinct races. Two of the skulls, he notices, had been broken during life. In one case there had been two blows, one across the nose, breaking in the upper part of the nasal bones, and another breaking into the frontal sinus, just above the orbit. The broken bones had in each case healed during life. In the other, however, the braincase itself had been broken just behind the orbit, and had not completely healed before the animal succumbed.

House No. XIII N.

To the east again, passing across a pitched yard from the well, we reach another building, which we have called House No. XIII N, though it is not a "house" in the ordinary sense at all. It is separated from House No. IV N by a space 36 feet wide, and is structurally independent of this.[a] It consists of a rectangular block, with a courtyard on its south side entered from the street by a double gateway 11 feet in width; the eastern portion of it is occupied by a smaller trapezoidal enclosure (1), on the east side of which an open hearth was found. The western wall of this enclosure seems to be interrupted by a pit 8 feet in depth containing pottery, etc.

The courtyard itself has pitching at an average depth of 1 foot below the grass level. Below it are big stones and a mortar layer, and the natural bottom lies some

[a] Outside its north-west angle is a small pit 5 feet 10 inches deep.

4¼ feet below grass. Along its south wall was found a small sandstone finial. (Plate XVIII. fig. 7.) Its west wall is, as has been said, missing. Near its south-west angle, in a shallow pit, a brick 3 inches in thickness was found bearing the letters ΛVG (fig. 7), a fragment no doubt of a stamp of the Legio II. Augusta quartered at Caerleon. It does not correspond exactly with any of those figured by Lee,[a] nor with any of the specimens in the Caerleon Museum. There was also found a bit of a yellow pot with scratched letters ART (?).

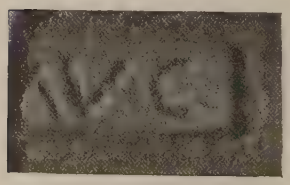


Fig. 7. Stamp found on a brick.

From the courtyard a doorway, the precise width of which is uncertain, led into the main block. This appears to have consisted of a colonnade of seven intercolumniations, the six columns being about 10 feet apart from centre to centre.[b] A base, 11 inches across, was found on the cross wall between Rooms 3 and 4 (Plate XVIII. fig. 6), but it is doubtful whether it belonged to the colonnade, as the westernmost column appears to have been abolished, and a capital with necking, belonging to a column 7¾ inches in diameter, was found to the north of the next socket-stone to the east. (Plate XVIII. fig. 2.) There has, however, been considerable alteration in the southern portion of the building, two different south walls being traceable at a lower level; and if the right angle turns at the east end of each of them be any guide, it may be necessary to suppose that they represent two earlier stages in the history of the colonnade, which underwent, in this case, a gradual extension eastwards. The original north wall, on the other hand, seems to have been slightly further to the north than the later one, but only a fragment of it is preserved. The later wall has been much forced outwards, probably by the giving of its foundations. Both the earlier south walls mentioned lie beneath the pavement, of old red sandstone slabs, of the space (Room 2) in front of the colonnade. At a later date two open hearths were inserted in this room, one close to its south wall near the doorway, and another, similar to that found in Room 1 of House No. I,[c] a good deal further to the east, while a T-furnace, resembling that found in House No. XIII[d] was introduced into Room 6, to the north of the line of columns.[e]

[a] *Isca Silurum*, plate xxiii. figs. 15-19.

[b] The socket stones exist in four cases; they measure from 1 foot 4 inches by 1 foot 7 inches to 1 foot 9 inches by 1 foot 10 inches, and the dowel holes about 4 by 6 inches.

[c] *Archaeologia*, lvii. 298.

[d] *Archaeologia*, lix. 308.

[e] In Room 6 was found the stone finial shown on Plate XVIII. fig. 3.

To the west of this furnace is a V-shaped gutter cut in the clay, which was covered with large slabs of limestone. There was no trace, however, of its passing through or under the north wall of the house, and it does not quite correspond in line with another similar gutter just outside it, which runs in the same direction. Further east another V-shaped gutter, 1 foot 2 inches deep and 1 foot 3 inches wide at the top, was found at about 6 feet below the grass level, containing a considerable amount of pottery. Its eastern termination could not be found. A similar channel was found in Room 7, $5\frac{3}{4}$ feet long, 2 feet wide, and 1 foot to $1\frac{1}{4}$ foot deep, which contained some Roman pottery and coins.

In the course of the transformations which the building underwent the west end of the colonnade was also abolished, and three rooms were formed there (3-5). Room 3, approached by a door from Room 2, had a floor of old red sandstone slabs, resting upon a perished concrete floor, this in turn lying above the earlier walls which traverse it. Its formation involved the suppression of the first column on the west, the socket-stone of which is built into its north wall. In Room 3 were found two fine iron spear-heads and part of a large platter of Kimmeridge shale. Outside its west wall a large kerbstone of curious form, and much worn, is fixed into the pitching of the yard.

The relation of Rooms 4 and 5 to one another is somewhat uncertain. Room 4 cannot have been entered from Room 3, and it is possible that Rooms 4 and 5 should be regarded as one, in the later building at any rate.

House No. XIV N.

Immediately to the east of House No. XIII N, and separated from it by a very narrow interval (8 inches to 2 feet) is a building which we have called House No. XIV N. Its extent, and that of the building to the east of it (House No. XV N), cannot have been appreciably greater than that shown on the plan, inasmuch as the street from east to west must pass only a few feet to the south of the modern boundary wall.

The internal arrangements of the building, which should perhaps be called block rather than house, are not easily recoverable, as the walls are hardly, if at all, preserved above foundation level, and the floors have perished. Room 1 has a drain in its northern portion, the object of which is not clear. After running east and west for a little way it soon turns at right angles and passes through the

north wall of the house by an aperture which seems to be broken through the wall. It is first built of yellow sandstone slabs, and is 1 foot wide, 9 inches deep, then it begins to be formed of old red sandstone slabs converging at the bottom; here it is 8 inches in width at the top and 11 in depth. After a course of 16 feet from the point where it turns northwards it reaches a pit, the bottom of which is 4 feet 6 inches below grass, with three old red sandstone slabs upon it. Further to the south are the much ruined remains of a furnace or furnaces. Upon one of the sandstone blocks a molten bronze coin, entirely illegible, was to be seen.

The other rooms contained no objects of interest, except that in Room 2 a pipe collar $4\frac{1}{2}$ inches in diameter and $1\frac{1}{2}$ inch in depth was found 1 foot 3 inches below grass level, also a small bronze sphinx.

Along the east wall of Room 4 is a standing block, like the drum of a column of old red sandstone, 1 foot in diameter and 1 foot 11 inches high, the object of which is quite uncertain.

A space about 16 feet wide, narrowing at the south end to about half that width, separates this building from House No. XV N.

In the space is a walled enclosure, with a wall only one stone thick, 4 feet square, a kind of rubbish pit, with a partly perished concrete floor about 2 feet below grass level. Below the concrete floor a bronze ring was found.

In the open space to the north of the house, between it and the wall which runs from Block E N to the Amphitheatre, several pits have been discovered. The largest and westernmost, a pit some 10 feet by 16 at the top, contained many fragments of pottery, and a whole pear-shaped vase of gray pottery, covered with a fragment of amphora, and full of small fragments of bones. The bottom of it lay just 4 feet below the grass level. Another similar but smaller pot was found on the same level, and also a coin of Constantine (Cohen, 463) and a coin of Valens (Cohen, 72); and just below these pots was a large stratum of bones, apparently of animals, and all broken.[a]

[a] Mr. E. T. Newton, who was kind enough to examine these bones, reports that "among the very fragmentary pieces of bone contained in the first pot, all of which had evidently been burned and much cracked, there are a few which can be recognised as human, and most probably all are portions of one individual. There can be no doubt that this was a funereal urn containing the ashes from a human cremation," and considers that the fragments in the second pot, though none of them certainly identifiable, were of a similar nature.

All the animal bones, as far as they were recognisable, belonged to small oxen (possibly *Bos longifrons*), and the animals had most likely been used for food. As he remarks, the discovery of two burial urns in this pit needs some explanation.

The natural earth was reached at from 7 feet to 8 feet below the modern level; just above it a silver coin of Julia Mamaea (Cohen, 25) was found.

To the east of the north-east angle of House No. XIV N is another pit 6 feet 6 inches in depth from the grass level, but much smaller in size, only about 4 feet by 3 feet at the bottom. Some pottery was found in it, and a coin of the Constantinian period $2\frac{1}{2}$ feet down. To the north of it is another pit, 6 feet 3 inches in depth.

House No. XV N.

The main portion of the building which we have described as House No. XV N is a range of four rooms, which must have led into one another; but here again the floor levels are not clearly marked.

The northernmost, Room 1, contained a small pit, and just outside its north wall was another, which produced some good pottery, including a perfect bowl of unglazed red ware, a fine glass cup (in fragments), a fragment of a small column, and a boot-sole with hobnails. Its total depth was 8 feet 3 inches, and it measured 4 feet by 2 feet at the bottom.

The west wall of the building is prolonged northwards to join the wall running from Block E N to the Amphitheatre.[a]

To the east of Room 2 an irregular wall runs eastwards. It has been broken through by a small drain, about 6 inches wide and 1 foot deep (originally roofed with slabs, of which one remains at the north end), which runs from south to north and empties itself into a pit which is surrounded on three sides by walling one course thick.

The pit was not, however, constructed for this drain, but for a far larger box drain, 2 feet wide and 1 foot 4 inches high, which runs beneath it. This was cleared out for a distance of about 24 feet, when it was found to be obstructed by a fallen stone. The slabs of which it is constructed are of considerable size, the cover slabs being a foot thick. In the drain was found Roman pottery and bones, and a coin of Constantine (?). The pit overflows into an earth drain, the course of which is not very clearly traceable. To the west, about 9 inches below grass level, was found the lower half of a large grey pot *in situ*.

To the east of the space through which the drain passes are two other small spaces, rooms one can hardly call them. That on the south shows traces of

[a] This is the branch referred to in *Archaeologia*, lix. 105, note [b].

reconstruction, the original north wall having been suppressed. The wall dividing them goes on to join the west wall of House No. V N.

Some way to the north is another pit, 6½ feet deep, which produced no finds of great importance.

House No. XVI N.

Of this building, whatever its nature, an inconsiderable fragment only has so far been discovered; but it appears to have been of some importance.

Its walls have been to a considerable extent removed to provide material for the village school, erected in or about 1856; and the portion now excavated consists only of three rooms. Of Rooms 1 and 2 little need be said, except that their floors are of concrete. The west wall of Room 2 seems to have been strengthened internally at a later period, and a later floor may be seen about 6 inches above the earlier, which is on a level with that of Room 1, and upon which the "strengthening" referred to rests directly.

Room 1 seems to have been accessible only from Room 3; a doorway also led from Room 2 into Room 3, which was, perhaps, entered from the east side as well. Room 3 is a very large room, 32 feet from north to south, by 36 feet at least from east to west, and was paved in the middle with mosaic, which has almost entirely gone, only a few fragments of the border, of small black and gray *tesserae*, being preserved. The edge for 7 feet on the south and 8 feet on the north side of the room was floored with concrete.

The south wall is preserved to a height of 13 feet 9 inches, and is 2 feet 6 inches thick. Painted plaster is preserved upon it, the upper coat almost entirely gone, the lower, much hacked to make it take the upper, in a better state (Plate XIX.), but both are much ruined by elder roots, and many loose fragments have been recovered. Upon several of them which can be joined together the inscription shown in fig. 8 has been rudely scratched. The text may run somewhat as follows:

(D) OMIT (ILLA) | VI(CTOR)I SVO | . . . . I PVNIAMIN(I).[a]

It would thus be a message from a female slave to her lover, another hand having afterwards written below "may you be punished!" The reading, how-

[a] The fragment with the letters VI upon it does not fit into the rest; and its position is therefore conjectural. Its present place in the illustration is due to a mistake.

F. G. Newton, delt. 1906.

CAERWENT — PART OF A WALL PAINTING IN HOUSE Nº XVI N.

Published by the Society of Antiquaries of London, 1906.

ever, as regards the last line cannot lay claim to certainty, though I had the great advantage of Dr. Christian Hülsen's opinion on the subject.

A fragment of cornice cut in brick was also found in the room, and about 6 inches above floor level 39 coins were found. They comprise 3 of Claudius II., 10 of Tetricus, 3 of Gallienus, 4 of Victorinus, 1 of Quintillus, 1 of Licinius, 1 of Diocletian, and 16 uncertain; those of Tetricus, Victorinus, Licinius, and Diocletian are in excellent preservation. The meaning of the vertical slits in the wall, corresponding to shallow channels in the concrete of the floor, is not altogether clear. The walling shown in outline, projecting northwards from the south wall of the room, must be an addition of quite a late date.

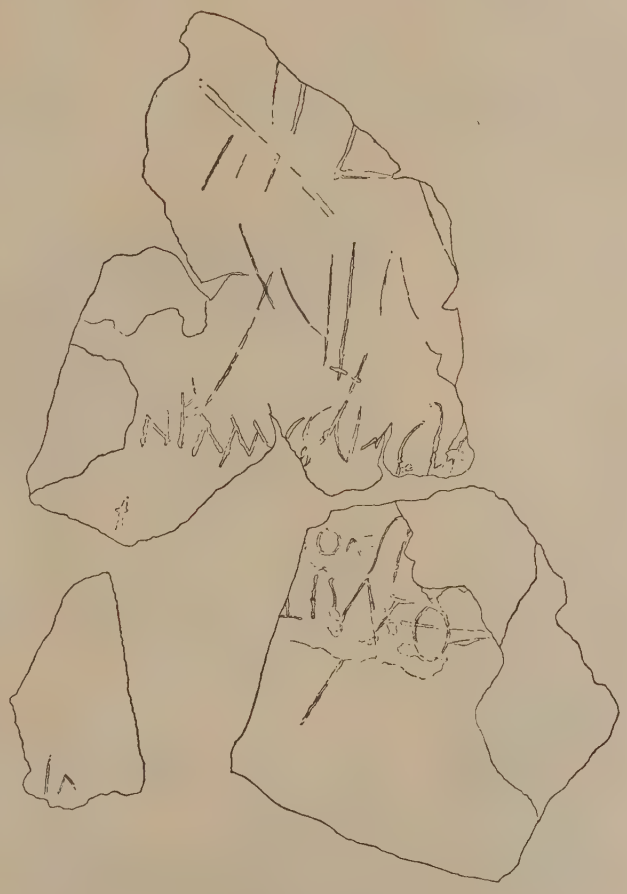


Fig. 8. Inscribed plaster from House No. XVI N.

The street to the north of this house is 1 foot 10 inches below the grass level, and apparently 14 feet wide, not including the spaces paved with gravel on each side, which were probably footpaths, 5 feet 3 inches wide on the north, and 4 feet 6 inches on the south. The core of it is extremely hard, formed of pebbles set together in fine sandy stuff. Below this are stones set on end, and then flat stones, giving a total thickness of 1 foot 2 inches. Below this comes the surface of an earlier road, with a bed 8 inches thick, of pebbles and sandy stuff, and then the hard natural bottom.

The well to the east of House No. VI N, which had been cleared to a depth of

18 feet in 1903,[a] was excavated to the bottom, which was reached at a depth of 25 feet 6 inches. The mouth measured from 2 feet 3 inches to 2 feet 5 inches in diameter, and so did the bottom; but at 18 feet from the top the well widened, and measured from 2 feet 9 inches to 3 feet in diameter, beginning to narrow again at 21 feet 6 inches. The masonry was good throughout; the bottom was sandstone.

The objects discovered included two or three fragments of a human skull, several ox skulls, and other bones, fragments of a wooden bucket, pieces of pottery, and several shoes with hobnails. In the mud a considerable number of seeds were discovered by Mr. Lyell and examined by Mr. Reid.

Fig. 9. Plan of Caerwent, showing discoveries down to November, 1905.

[a] See *Archaeologia*, lix. 112.

VIII.—*The Palace of Westminster in the Eleventh and Twelfth Centuries.*

By W. R. Lethaby, *Esq.*, *F.S.A.*

Read 25th January, 1906.

THE SAXON, OR OLD, PALACE.

We do not know when the English kings took up their residence at Westminster. Some slight indications suggest that Canute may have first established himself here. It is clear from the name Westminster that the Abbey was first in place, and this is confirmed by the position of the Palace, built along a narrow marshy strip between the better ground of the Abbey precinct and the river. Holyrood seems to be a parallel case of a famous religious house drawing the king's palace to its side. There is no certain evidence for the existence of the Abbey itself until the opening of the last third of the tenth century. The points in favour of Canute's residence at Westminster are as follows. His son Harold was buried in the Abbey, and according to the traditions of the house he was a great benefactor to it, presenting it with many relics, and being much attached to the Abbot Wulnoth. Gaimar, a twelfth-century writer, says that the dispute as to the tide happened at Westminster. "He was in London on the Thames, the tide was flowing near the church called Westminster, and the king stood at the strand on the sand." The first positive evidence as to the Saxon palace is contained in William of Malmesbury's Chronicle, which tells how King Edward the Confessor was wearing his crown at Westminster, and while sitting at table one Easter Day, surrounded by nobles, he

saw a vision. After the tables were removed, while he was unrobing in his chamber, he told how he had seen the Seven Sleepers of Ephesus turn in their slumber.[a] Another piece of firm testimony is to be found in the embroideries of the Bayeux tapestry, where the Palace is figured in its proper position to the east of the Abbey. Apparently with a view to showing their immediate contiguity a man is depicted reaching from the Palace to the weathercock of the middle tower of the Abbey church.

THE NEW PALACE.

In the last decade of the eleventh century William Rufus built the great hall which, with presumably some attached buildings, formed the New Palace. Of this hall there are still some remnants, and it is certain that the lower parts of the present walls are of Norman work, and that Richard II. only altered the hall of Rufus without enlarging its area. Besides the structural evidence, which is quite conclusive, there is in a MS. at the Heralds' College a note written *circa* 1300 giving its dimensions as 270 feet long by 74 feet wide.[b] It is really about 239 feet long by 67 feet wide, but this very dimension noted *c.* 1300 is given also by Stow as the size the hall was reported to be.[c]

At the present time the original Norman strip-buttresses, almost totally recased, may be seen along the exterior of the west side above the modern attached building. It is worth noticing these, because they give an objective reality to the mighty hall of Rufus that no mere record could do.

The details of this piece of Norman architecture are especially worthy of study from the intrinsic interest of the subject, and from the fact that being a royal work in the capital it must have been in the most advanced style of the moment, also because its date is made absolutely sure by sufficient record. In the Saxon Chronicle, under 1097-8, we are told how the king levied oppressive taxes for his

[a] In this passage we have the use of hall and "chamber" carried back to the time of the Confessor.

[b] MS. 30 Arundel. "Longitudo Aule Westmonasterii est CCLXX. pedes. Latitudo LXXIIII."

[c] The relative proportion is fairly maintained in these excessive dimensions, and we are reminded that ancient dimensions of old St. Paul's, also reported by Stow, were equally in excess of the facts. Do these dimensions represent some old standard, such, for instance, as "the foot of St. Paul's"? On the other hand, the bays of the hall are nearly 20 feet from centre to centre, and it seems probable that the hall was designed as twelve bays long, each of 20 feet span: 240 altogether.

works at the Tower and at the king's Hall which was being built at Westminster, and many men perished of want. In 1099, according to Henry of Huntingdon, William Rufus came over to England and kept court for the first time in the new palace at Westminster. This was at Whitsuntide, we are told by Florence. The great size of the hall and the oppressive levy of the king were deeply impressed on the popular mind, and a story sprang up which is usually taken quite seriously, but which I have no doubt is a myth, a myth of extravagance. The germ of it appears already in Henry of Huntingdon, who says that while the king was inspecting the new hall with his attendants one of them remarked that it was much larger than necessary, "to which the king replied that it was not half large enough." In the later chronicle of Matthew Paris the story reappears in an amplified form, and the reply of the king is said to have been that "it was not half so large as it should have been, and was only a *thalamus* compared to the building he intended to make." Stow, in quoting this form of the story, adds, "Paris saith that a searcher might find out the foundations of the larger hall stretching from the river to the highway." But I fail to find the passage, and the growing story has all the characteristics of a myth. William of Malmesbury has a page on the prodigality of Rufus, and gives the following parallel story, while he does not mention that about the hall. One morning, while putting on his boots, the king asked what they had cost, and when told, cried out in a rage, "Three shillings![a] What a price! Bring me a pair worth a mark of silver!" And so another pair was brought which was said to have cost so much, but these boots were really inferior. "Eh!" said the king, "these will do." Thus his chamberlain used to charge him what he liked. Gaimar gives what is evidently a legendary story of the elaborate service of the table at the inaugural banquet in Westminster Hall.

We have just seen the work of Rufus called the New Palace by the nearly contemporary Henry of Huntingdon. The title Old Palace was in use in the thirteenth century for the range of buildings to the south of the great hall which doubtless were on the site of the Confessor's house. A description of the preparations for the coronation of Edward I. in 1273 tells how temporary buildings for the feast were erected on the open ground[b] "on the south side of the old palace." The still current names of Old Palace Yard and New Palace Yard we may conclude date from the time of the building of the hall of Rufus.

[a] About the cost of a pair of oxen.

[b] Riley, *Chronicle of the Mayors and Sheriffs.*

THE INTERIOR OF THE GREAT HALL.

When Sir R. Smirke restored the great hall in 1834 he found several portions of the Norman windows which had pierced the side walls, and of a wall gallery running at the level of their sills throughout the east and west sides, and also returning on the south end. The north end was not fully examined, but it was thought probable that there was a similar gallery here.

From the evidence then found,[a] his brother, S. Smirke, made a conjectural restoration of the side walls of the hall which it is the main purpose of this part of my paper to amend. We owe it to his most careful discrimination between what was actually discovered and his conjectural reasoning thereon, a model of precision, that such advance is possible.[b] The facts are these. The jambs of Norman windows, and portions of the arcaded gallery, were only found where they had not been destroyed by the later windows of Richard II.'s work. Smirke proceeded to make his restoration by putting a window in the *middle* of each of the obliterated spaces. This resulted in an irregularity of relation between the windows and the arches of the wall gallery, which neither he nor more recent writers have been able to explain; and the theory that the fragments of the Norman windows discovered were later in date than the arcade has been resorted to. The report of the Committee on Westminster Hall reads: "This arrangement seems to point to the fact that there was intended to be a continuous arcade, and that the larger openings were insertions not according to the original design; why at such irregular intervals it is impossible now to conjecture."[c] The *irregular* disposition of the windows is an assumption which follows from Smirke's theoretical restoration. Where actual remnants of windows were found they were at approximately equal distances from one another, distances agreeing with the dimensions of the bay divisions and with the spacing of the wall arcade. I shall show that by following the evidence and discarding Smirke's faulty assumption all becomes clear, and we can bring back with certainty much of the original appearance of the

[a] *Archaeologia*, xxvi. and xxvii.

[b] See the reproduction of his survey in *Archaeologia*, l. plate i.

[c] Report from the Select Committee on Westminster Hall Restoration, 1885, p. 159.

hall. In *every case*, three in all, where a window jamb was discovered together

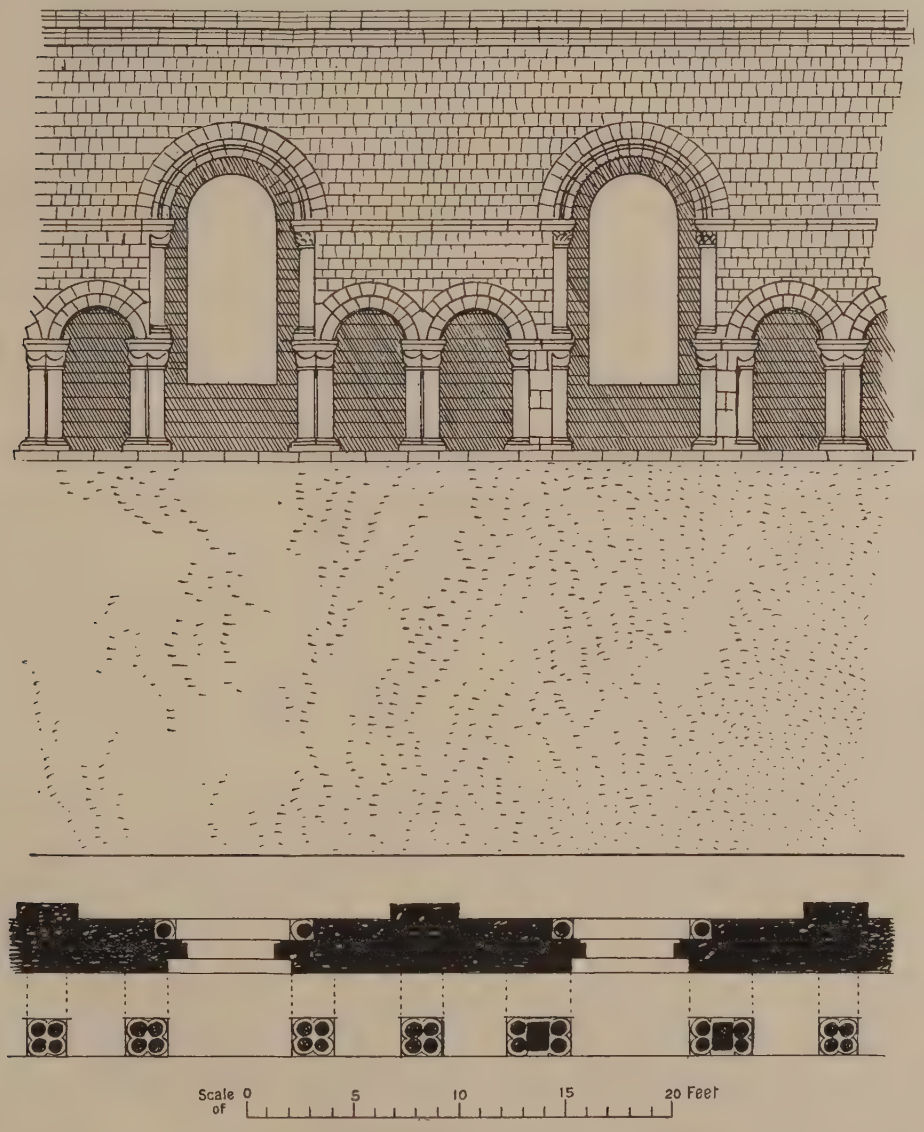


Fig. 1. Bays of the Interior of the Norman Hall : Restored.

with a neighbouring part of the arcade, the window and the arch were close

together. Instead of accepting this rule all Smirke's conjectural windows are pushed away from the arches. If following the facts we experiment afresh, we reach the solution shown in my fig. 1, and this model will be seen to account for every indication found. In some cases an arch of the passage was separated from the window by a narrow strip as shown on the right; in other cases they came quite close as shown on the left. Authority for this slight variation is given by Smirke's survey of actual remnants. Considering further the disturbances produced by Richard II.'s work, it is clear that the traceried windows then inserted occupy the positions of the Norman windows, except that those of the east side at least were all pushed further to the north, so that in every case it is the south jamb of an original window which was preserved. One of the small arches in each bay was destroyed by the encroaching and widened window, and consequently in no case were the *pair* of arches which intervened between neighbouring windows intact.[a]

Smirke discovered an internal cornice in position, and at its level a second passage ran across the south gable end. This doubtless communicated with the external passages behind the parapets; they were served by a turning stair, of which remains were found in the south-east angle. There were two plain round-headed doors found at the south end of the great hall by which access to the inner palace was gained. There were also two similar doors towards the north ends of the flank walls; one of these latter at least Smirke thought was an external door. Probably they were like the north and south doors in the nave of a church.

There is no certain record of the finding of any foundations for internal pillars; nevertheless it is clear that the hall could not have been roofed in one span, and it must have followed the usual type of internal division shown by the halls of Oakham and Winchester Castles.[b] This division may have been formed by wooden posts, like the great tithe barns.[c]

[a] One reason for the modifications in the spacing seems to be that the south wall of the hall is not set square to the rest of the work, and the west side is longer than the eastern. Irregularities still appear in the spacing of the present windows on the east side; in two cases they are as much as 16 inches out of centre (towards the south). In the end bay to the south the window is close to the wall-truss, and is smaller than all the rest.

[b] In the Castle grounds at Guildford there is a large base which can hardly be anything else than a part of one of the pillars of the Great Hall.

[c] Mr. W. H. St. John Hope has referred me to the Norman Castle Hall at Leicester, illustrated

We are now able to obtain a fairly complete view of the interior of this hall, one of the greatest in the world. The side walls were of plain rubble up to a height of nearly 20 feet from the floor; then came the continuous gallery some 220 yards (an eighth of a mile) in circuit. This gallery passed around at the level of the sills of the windows which occupied the upper space of the walls. The gallery and windows were like the ordinary arrangement of a Norman clerestory, as, for instance, that of the transepts in Winchester cathedral church. The height to the cornice of the flank walls from which the roof rose was about 40 feet.

The rough wall below the arcade was of course plastered. Smirke tells us that the passage was coated with thin plaster and "jointed with brown lines. The columns and imposts were painted with bright colours, amongst which red and black were discernible. The general surface of the wall, both above and below these arches, was similarly finished and ornamented with rich and minute painting, probably of some subsequent date." Such painting was done in preparation for the coronation of Edward I. by Stephen, the king's painter,[a] and again for the coronation of Edward II.[b]

THE EXTERIOR OF THE HALL.

In 1883 the west wall of Westminster Hall was laid bare throughout its whole extent by the destruction of attached buildings, and excellent accounts of what was then found of the original Norman walls were laid before this Society and printed in *Archaeologia*.[c] A second survey was published in the Report of the Select Committee appointed by the House of Commons to consider what should take the place of the destroyed buildings. In this latter survey the several ages of the

in Mr. James Thompson's *Account of Leicester Castle*, as having a close resemblance to what has been shown was the probable form of the roof over the Great Hall at Westminster. Following this I have shown posts on the plan. He has also given me accurate measurements of the interior width of the hall, which is 67 feet 2 inches at the north end and 68 feet 2 inches towards the south, where the modern steps begin.

[a] Issue Roll, 1 Ed. I.

[b] Brayley and Britton, 116.

[c] Vol. l. 1-16.

remains are distinguished by separate colours. The south-west angle of the hall is covered for a distance of about 15 feet by the angle and stair-turret of the Houses of Parliament. From thence there was distinct evidence of ten consecutive Norman buttresses. Then came a space double the width of the rest in which no evidence of a buttress was found, but it is probable that it had been cut away, for there is no doubt that there was a window in the most northern bay, as Soane found this window beneath the roof of the upper part of the Exchequer Court, which later abutted against this bay. We thus have certain evidence that the Norman hall was twelve bays long. The great flying buttresses of Richard II.'s work were placed opposite alternate divisions, thus making six wide compartments instead of twelve. For three bays from the south end their position is exactly opposite the alternate old buttresses, but further towards the north, the new bays fall short of the older ones by a foot or two. Of the eastern side wall of the hall and its buttresses there is no such accurate survey. From Capon's plan, which is the best authority, it appears that neither the earlier nor the later buttresses are exactly opposite those of the other side. The bays, however, averaged about 17 feet in the clear, and the old buttresses were 2 feet 9 inches and 2 feet 10 inches wide. At the two south angles were wide buttress piers, and there were doubtless similar angle piers at the north end.

We can establish the form of the exterior of one of the bays from three principal authorities. The first is a careful drawing of one of the windows at the north-west, drawn by Sir John Soane in 1823, and preserved in his collection. This gives us the widths of the windows and details of the capitals of the nook-shafts.[a] The second is a fragment of the south-east angle, engraved by Gage Rokewode[b] which shows the upper string, courses of masonry set in chequers, and the moulding of the window arch. The third is a small view by T. J. Smith of another window found behind St. Stephen's belfry on the east side, from which we obtain the approximate height of the window, and the fact that the jamb started from a second string notched like the other. Above the ground was a chamfered plinth. These facts are brought together in my restoration of the exterior (figs. 2 and 4). The walls were 6 feet 8 inches thick, the core being of concrete-like rubble with a casing of small square stones. The chequered masonry beneath the parapet

[a] Smirke says: "On the outside a column seems to have ornamented the angle of the reveal, with its base resting on a string course."

[b] *Vetusta Monumenta*, vol. vi. plate xxvi.

was of two varieties of stone, Caen and Reigate. A detail of the notched string is given by T. J. Smith, and is also shown by Rokewode.[a]

When the west wall was exposed it was described in *Archaeologia*[b] by Mr. Somers Clarke as being "built of wide-jointed masonry," and showing "an intermixture of two sorts of stone. The builders seem to have valued the effect so produced, making an imperfect chequer work on their wall." The wall was

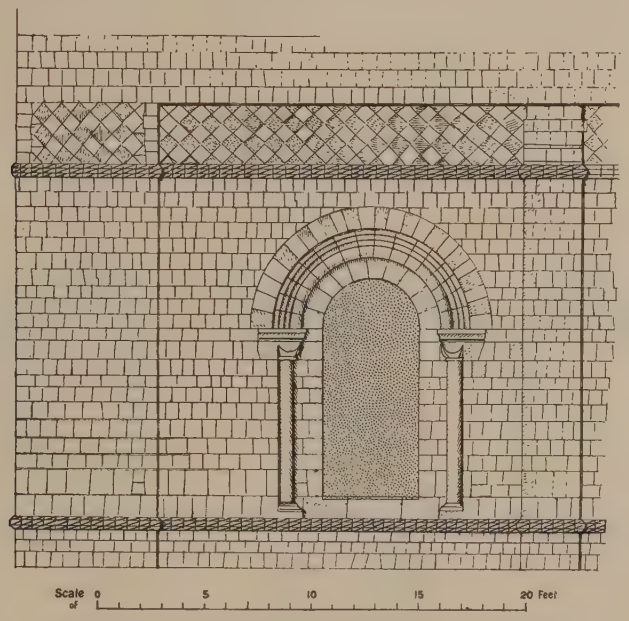


Fig. 2. Restoration of South Bay on east side : Exterior.

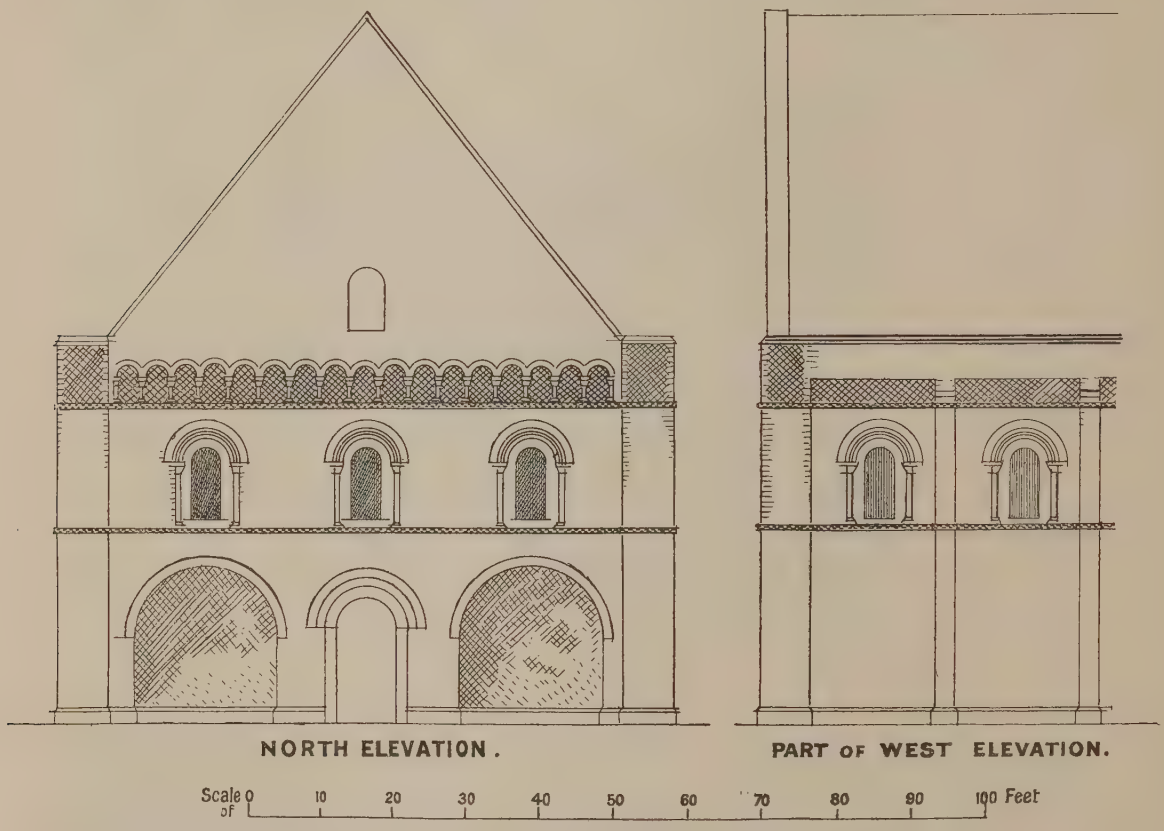
covered with masons' marks, which were fully described by Dr. Freshfield in the same volume.

In the angle of the small cloister at the Abbey there is a piece of chequered lozenge-walling exactly like that of the palace. It was a favourite method of decoration in early Norman work.

[a] At the entrance to the Abbey Chapter House are preserved a number of carved capitals, some of which are the same as those figured by Smirke as having been found at the hall. Mr. Wright some years since told me that they came from the hall. Another of these capitals is now in the office of the Clerk of Works to the Houses of Parliament. A cast of a fragment of the notched string is at the Soane Museum.

[b] Vol. l. 12.

Besides the chequering of the top of the side walls this system of decoration appeared also on the gable ends. Smirke found the remains of an external arcade on the south front at a height considerably above the windows; there were 6-inch shafts, and the wall surface between was formed of alternate lozenges of Reigate



Figs. 3 and 4. Conjectural Restorations of the Exterior of the Great Hall.

and Caen stone. At the north front, again, on each side of the central entrance, was a wide blank arch filled with similar masonry.

From all the data before us we may even venture to put together a restoration of the north gable end. (Figs. 3 and 4) Setting out the arches just spoken of in relation to the total width of the front, some 80 feet, we find that they fall properly into place, leaving a suitable space at the angle for a wide buttress-pier such as was

found at the south-east angle. Then we have the heights of the two string-courses and the parapet from the side elevation. As to the windows, Smirke tells us that two were found similar to those on the flanks on either side of the great south window, and they are indicated on Brayley's Plate X. On transferring these to the opposite gable they come just above the broad blank arches, and, indeed, give a satisfactory reason for the spacing of those arches. Putting, now, a central window as well, the three space at intervals very similar to the side bays, and such an arrangement, moreover, would be required by the interior division, which we must assume existed, although there is only the slightest direct evidence for it. The wall arcade with the lozengy background, which is said to have been "considerably above the height of the windows," would find its place perfectly above the second string, and when we see that this exactly ranges with the chequered masonry of the flanks, we may regard this position as proved. We only now have to add a supposititious line for the pitch of the gable, and we have the gable-end represented in my figure. It is at least possible that the old pitch was followed in Richard II's new roof, and some confirmation of this is to be found in the simple agreement for the new masonry then required, which provided for raising the walls two feet. This diagram is in itself sufficient to prove, I think, that the roof cannot have been broken into central span and side aisles, leaving a space for a clerestory. The large size of the windows, thirty at least of which formed a continuous range around the hall, gives a confirmation to this view.

The exterior of the roof was originally covered with shingles, as we know from entries for its repair in the Pipe Rolls of Henry II. There is no doubt that these were of wood, for in 13 Edward II. a *carpenter* was employed cutting shingles for the roof of the great hall.[a]

[a] Brayley and Britton, 121.

SAINT STEPHEN'S CHAPEL.

To the south of the great hall stood the domestic hall of the palace, generally called the Little Hall; its east wall was in line with the east wall of the great hall. The ends of the two were separated by an interval of over 20 feet. Other buildings projecting to the east and west of this space enclosed it as a court; and here were the stairs which served for access from the lower level of the great hall, and the undercroft of the lesser hall, to the upper floor. To the east of the court Saint Stephen's Chapel jutted out towards the river, and to the west the chamber best known to us as the Court of Wards projected towards the Abbey.

Saint Stephen's Chapel is said to have been founded by King Stephen, and this seems likely from the dedication. It is often mentioned in records of the time of Henry III., and Stow tells us that King John, in the seventh year of his reign, granted to Baldwin of London, clerk of the Exchequer, the chapelship of St. Stephen's at Westminster. A charter was dated "from the King's Chapel at Westminster" in 1184,[a] and the chaplain of the chapel of Westminster is mentioned in the Pipe Roll for 23 Henry II.

From a notice, cited by Gage Rokewode, we gather that one descended to the chapel,[b] and it appears that the early chapel must have been nearly at the same level as the undercroft of the little hall, which, as I shall show, was probably the domestic hall of the early Norman period. The size as shown on the plan (Plate XX.) is conjectural, and therefore the walls are distinguished by hatching.

THE LITTLE HALL.

The little, or lesser, hall, so called in the time of Henry III., may very well have stood on the site of the Confessor's hall. Although no part of a

[a] Hall's *Antiquities of the Exchequer*, 14. Mr. Hall wouldi dentify a lodging in the palace, spoken of about this time, as a tower near to the river, with the tower which at a later time stood on the west side of the great hall, but the evidence is against the latter being earlier than the fourteenth century.

[b] Part of the staircase between the great hall and the still existing undercroft of the later chapel was found to be of Norman work.

pre-Conquest hall can have survived to days of which we have record, there is evidence that some of the undercroft of the little hall was of Norman work earlier than Henry II., who, as we shall show, rebuilt at least the hall above it. The undercroft, like the hall, was 120 feet by 38 feet, and its walls were about 6 feet thick. Towards the north end of the undercroft were doorways opposite to one another, allowing of a passage across it which was maintained up to the last. On Capon's plan it is called "Passage to Cotton Garden." Sandford's plan seems to indicate that this north end, with the doorways, was screened off from the rest in the manner well known to us in the typical plan of a medieval hall. It formed, I have no doubt, the chief entrance to the private palace.

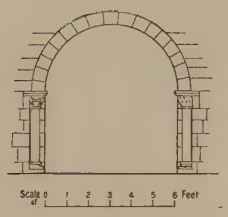


Fig. 5. Fireplace.

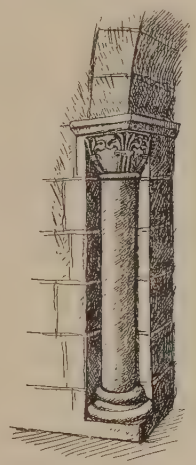


Fig. 6. Detail of Jamb of Fireplace.

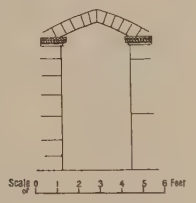


Fig. 7. Doorway.

Another archway in this undercroft is figured in Rokewode's Plate XXVI., and better as to detail in Rickman's "Attempt." From the latter I have made my fig. 6. The arch was a semicircle of 6 feet 3 inches span, rising from pillared jambs only 3 feet 9½ inches high to the top of the abacus. Comparing it with fireplaces of Norman date,[a] I am convinced that this was the fireplace of the undercroft. According to Rokewode's text the masonry was of "early construction," and "filled up in the west wall of the crypt." In Smith's *Antiquities of Westminster*, he shows old foundations of a small projection against this west wall of the

[a] For example that of Rochester Castle, which is almost exactly like this.

undercroft which *might* represent a deep fireplace, which would have been cut away at some time when modern buildings were built against the exterior and the arch closed with masonry. But this projection may not have been of early work, and on my plan I have not retained it.[a] The arch and the jamb seem to have been of earlier character than the work of Henry II., and Rickman thought that they were part of the work of Rufus. (Fig. 6.)

Carter gives also an illustration of a doorway which he says came from the crypt beneath the Court of Requests (the late name for the little hall), which had impost mouldings of early Norman character, although the arch above it was pointed. (See my fig. 7.)

It is probable, I think, that this undercroft was the earlier Norman hall. The floor between it and the little hall above was not vaulted. It was repaired in 1307, being "newly planked and strengthened below in various parts with great timber."[b]

The "little hall" proper, above, was lighted at the south end by an important group of three windows surrounded by zig-zag mouldings. These are well represented in Smith's volume by a wood-cut, but only two of the windows were visible at the time that it was drawn. Supplementing this from an engraving in Rokewode we get the result shown in my figure 8. There were no windows below in the undercroft. Carter says it was plain wall from the ground to the string with the "diagonals." Rokewode also gives a view of the interior while it was in ruins, which shows that the inner walls were panelled into a series of blank arches. This upper hall at least was the work of Henry II. According to FitzStephen, Archbishop Thomas, in the year 1163, repaired Henry II.'s Palace in London with great rapidity. Brayley and Britton argue that London cannot be stretched to cover Westminster, and that the work in question must have been at the Tower. In another place, however, they quote from Matthew Paris how Edward the Confessor was "buried in London" in the church he had built. And many old instances could be adduced showing this to be a common expression.

It is certain, in any case, that a considerable part of the inner palace was rebuilt by Henry II., including the little hall. In the Pipe Roll for 8 & 9 Henry II. (1162-3) is an entry for work for the king's hall at Westminster. In 12 Henry II.

[a] In early days there would not have been a deep chimney, and perhaps in any case this position would push this Norman chimney arch too far out of the middle of the length of the hall.

[b] Brayley and Britton.

there is a record of the expenditure of the large sum of £190, and Alnoth, the *ingeniator*, is mentioned in connection with the works. In the next year £64 is entered as spent on the works for the "new hall" and the "queen's chamber." In the fifteenth year Alnoth is again named. In 1172 works at the "king's houses" and the "aqueduct" are mentioned, and according to Rokewode Alnoth

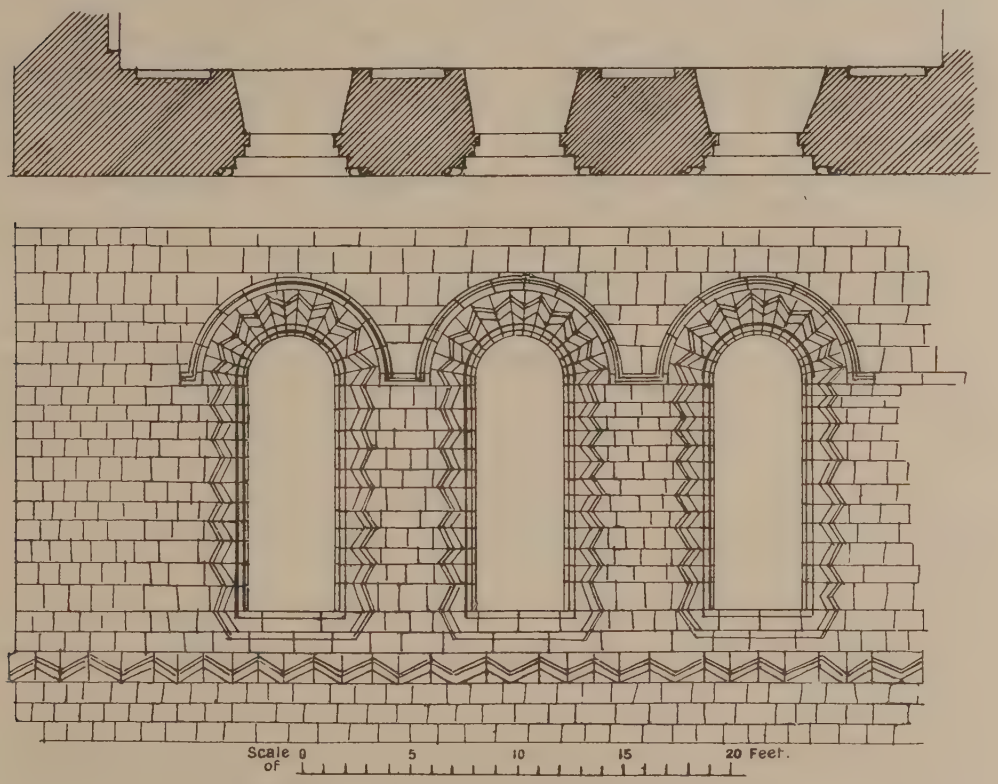


Fig. 8. Windows at south end of the Little Hall : Exterior.

was still employed in the years 1177-8 (23 & 24 Henry II.). In this year the "king's chamber" was repaired, and £5 1s. was spent on the "king's wardrobe." In the 30th year Henry II. the quay of the king's *curia* was repaired and the floor of the great hall was raised. The "lavatory in the king's hall" was begun to be restored in this year at a cost of £28, and in the following year £50 was spent upon it. This is possibly the same as the "conduit of water in the

king's court at Westminster" mentioned under the first year of Richard I.[a] The king's quay mentioned above was the landing place for New Palace Yard and was more usually called "the king's bridge." I find it already called *Pons Regis* in the Pipe Roll for 1189 (1 Richard I.). It was in later days at least a projecting wooden platform resting on stone piers like those of a bridge. Foundations of it which were found in 1839 are described in the *Archaeological Journal*.[b] The king's chamber of Henry II., mentioned above, probably occupied the position of the painted chamber of Henry III., the undercroft of which had some vaults at its east end which seem to have belonged to the latter half of the twelfth century, judging from the representations of them given by Rokewode and others.

There are some indications on Capon's careful plan that the undercroft of the chamber was later than that of the little hall, some of the windows of which appear to have been blocked by the chamber. This again confirms the view that the basement of this hall was earlier than the time of Henry II.

I do not know of any evidence which would show that the buildings to the south of the chamber had existed in the twelfth century, although a claim for great antiquity has been made for the undercroft of the old House of Lords, mainly on account of a door which had what is usually called a triangular arch. This door, however, only gave entrance to a small garderobe, and was hardly more than 2 feet 3 inches wide. There is not sufficient reason to suppose that it was earlier than the rest of this part of the building, which seems to have been of Henry III.'s work.[c]

The chamber called the Court of Wards in Sandford's plan of 1685, placed as it was between the little and great halls, was, I have no doubt, in existence at least as early as Henry II.'s time.

For one other portion of the building of this time we have the evidence of records. This is the Exchequer House, which was a two-storied building between the great hall and the river. The basement was an assay office, and the upper floor a court room. The Exchequer at Westminster is mentioned as early as 1164,

[a] For entries from the Pipe Rolls of 23 Henry II. and later I am indebted to Mr. Hubert Hall's *Court Life under the Plantagenets*, 237. He says that Alnoth appears in the London Pipe Roll almost every year as receiving sums of about £7 10s., his fee I suppose.

[b] Vol. vi. 71.

[c] If this door were proved to be of Saxon work I would much rather suppose that it was refixed here than that it was part of the Saxon palace *in situ*. In the Confessor's time I should think this point was not only close to the river but in it.

in which year, as shown by a passage quoted from FitzStephen by Mr. H. J. Round, John the marshal was in London, "engaged at the quadrangular table which, from its counters of two colours, is commonly called the Exchequer, but which is rather the king's table for white money, where also are held the king's pleas of the Crown."[a]

I have suggested on my plan that the Exchequer House occupied the angle between St. Stephen's Chapel and the great hall. In later days it certainly abutted against the other end of the hall, but early in the fourteenth century the receipt office of the Exchequer is more than once said to be near to St. Stephen's Chapel. Thus, in 1319, the roof of St. Stephen's near the Receipt was repaired, and in 1341 a scaffold was put up to the chapel of St. Stephen near the Receipt.[b] In 1348 the *new* house of the Receipt is mentioned as being near the Star Chamber. This title, I suppose, marks its erection on the new site. Again, in the account of the great fire of February 17th, 1263, given in the *Chronicle of the Mayors and Sheriffs*, we are told of the destruction of "the lesser hall of his lordship the king, the chamber, the chapel, and the *Receptaculum*." This last can hardly be other than the Receipt of the Exchequer, and it cannot, *then*, have been separated by the whole length of the great hall from the domestic buildings which were burnt.

I have shown that in the twelfth century the private palace had a hall in two storeys with a chamber projecting at one end and a chapel forming a similar wing at the other end. There was also a separate queen's chamber. The aqueduct, which is mentioned as of this time, was probably the conduit of later days, which seems to have been situated in Old Palace Yard,[c] around which as a court were most likely grouped the kitchens and offices, as low buildings detached from the main body of the inner palace, which is nearly completely represented I think by the buildings we have discussed. To the north of this private palace was the great hall and the Exchequer, with a forecourt (New Palace Yard), which already had, projecting into the river, its little landing stage called the King's Bridge, or Westminster Bridge. The whole palace area was surrounded by walls, as we learn from FitzStephen's reference to the splendid palace by the river surrounded by a battlemented wall.

The narrow strip of low damp ground hardly 300 feet wide, squeezed between the Abbey and the river, was an extraordinary site on which to rear the chief

[a] *The Commune of London*, 64.

[b] Brayley and Britton, 122, 161.

[c] Not the great conduit of New Palace Yard.

palace of the kings of England. In the days of which I have been writing the river probably came right up to the end of the king's chamber, as pointed out by T. J. Smith. This would give the reason why the vaulted passage-way with opposite doors was arranged across the end of the undercroft as a thoroughfare. (See Plate XX.) The land, like the name, of the palace must have been obtained from the neighbouring abbey Westminster.

I had hoped to reconstruct some part of the palace as it was in the time of Henry III. from drawings I have found at the Soane Museum and the Bodleian, but I hope to return to this on another occasion, and meanwhile I content myself with these notes on the palace in the eleventh and twelfth centuries.

IX.—*Excavations on the site of the Roman city at Silchester, Hants, in* 1905.

By W. H. St. John Hope, *Esq.*, *M.A.*

Read 31st May, 1906.

I have the honour of laying before you to-night, on behalf of my colleagues, the sixteenth detailed report of the Executive Committee of the Silchester Excavation Fund, that for the year 1905.

The excavations last year extended over the six months from 19th May to 18th November, and were carried out under the direction and supervision of our colleague Mr. Mill Stephenson, to whom we have again to express our grateful thanks for his ungrudging and freely given help.

The portion of the site selected for the year's work was a broad strip along the western side of the pasture or grass field near the middle of the town. The strip in question was known to cover the greater part of the sites of two *insulæ* and of portion of a third. The remainder of these *insulæ* lie in the large tract of arable land on the west, and were excavated when the sites of the *basilica* and *forum* were re-examined in 1892. Certain foundations were then laid open which belonged to buildings extending under the grass field, and it was one of the objects of last year's work to pick up and follow the lines so disclosed. The results were satisfactory enough, but they necessitate some modifications in the deductions drawn from what was found in the previous excavations.

The northern of the two *insulæ* had already been numbered V. It was practically square, and measured some 236 feet from north to south, and the same from east to west, and was surrounded on all sides by streets. (Plate XXI.). The north-

west corner of the *insula* was occupied by a building of somewhat interesting character. In our report for 1892 the foundations then laid open were described as "portions of a large house occupying the angle, with corridors lining the streets." But now that we have the complete plan it is not easy to claim that the building was a house, and it will be safer to call it Block I. It consists of a main portion lying north and south, 85 feet long and $33\frac{1}{2}$ feet wide externally; with a corridor or colonnade about 8 feet wide along the western side, abutting on the street there.[a] The main block consists of three principal divisions: (1) a transverse passage 29 feet long and 8 feet broad; (2) a large hall 35 feet long and 29 feet wide, with a colonnade of three spans with brick piers down the middle to help carry the roof; a series of four rectangular chambers (3, 4, 5, 6)[b], one of which was paved with coarse red mosaic. As there were no traces of paving in any of the other divisions of the building their floors may have been boarded. Projecting from the north-east corner of the building was a small chamber (7) measuring about $10\frac{1}{2}$ feet by 7 feet, with foundations of blocks of ironstone.

The walls of the block, so far as they remained, were constructed throughout of flint with lacing courses of tile, but along the eastern side of the hall, where the masonry stood highest, the tile-work largely predominated and was overlaid by a course of massive ironstone blocks. Most of the tile used in the building consisted of fragments of large and thick tiles taken from some older structure.

Along the east side of the hall (2) was built a mass of brickwork, 20 feet long and $7\frac{1}{2}$ feet deep, as the base of a number of long flues running back to the wall, but of these the remains of one only were left, which had escaped through having a firmer foundation than the clay that underlay the rest. Against the west wall was found a pair of similar long flues in fair preservation.

A comparison of the features just described with those of other buildings of similar plan in *Calleva*, especially those found in 1894 in *Insulæ* IX. X. and XI. and in particular with Block III. in *Insula* IX.[c] all point to this building in *Insula* V. having been, like them, a dyeing-house. Mr. Fox suggests that the hall (2) was possibly an open court as regards one half, in which operations could be carried on out of doors, and that the western corridor may have served as a

[a] Along this wall, as described in our Report for 1892 (*Archaeologia*, liii. 569), is a long drain, square in section, and formed entirely of large tiles. It runs southwards for at least 120 feet.

[b] The dimensions of these were: 3 and 4, about $15\frac{1}{2}$ feet square; 5 and 6, $15\frac{1}{2}$ feet by $11\frac{1}{2}$ feet.

[c] *Archaeologia*, liv. pl. xlv.

drying place. The room (4) with the mosaic pavement he thinks may have been the dyer's office, and the other three chambers his store rooms.

At 18 feet to the south of Block I. appeared the foundations of, possibly, an earlier structure of much the same general plan. It stood, however, east and west, instead of north and south, and consisted of one main block, measuring externally about 80 feet by 34½ feet. Across the west end, which abutted on the street, was, probably, a portico (1) 6 feet deep, and in rear of it an open court (2) about 31 feet square.[a] This may have had wooden pentises along one or more of its sides. To the east of the court was a series of chambers[b] divided into two groups by a corridor 4½ feet wide which ran between them.[c] On the north of the corridor were two rooms: a smaller (3) and a larger (4). The latter seems originally to have been subdivided, but the partition wall was taken down and a red mosaic pavement carried over and about 6 inches beyond it from the east end of the enlarged apartment. On the south of the corridor were two rooms (5, 6) of equal size, and between them and the court an extension of the corridor southwards (7) but only 3 feet wide. This no doubt contained a wooden staircase to an upper floor. The foundations separating the stair from the court and those of the rooms north of the corridor seem, from their thinness, 12 to 15 inches, to have carried wooden partitions.

Fig. 1. Capital of a small column found in House No. 1, *Insula*, V. in 1892. (⅛ linear.)

Nothing was found in or about the building to suggest its use, but as the chambers in the eastern half were apparently living rooms, it may be called House No. 1 of *Insula* V.

The small capital of a column shown in fig. 1 was discovered in 1892 in the portico of the building, but can hardly have belonged to it.

In later days House No. 1 seems to have been either gutted or partly dismantled. Occupying the sites of rooms 4 and 5 were the remains of a wrecked hearth, enclosed by a later wall overlying the inward limits of the northern group

[a] Two breaks in the dividing wall between court and portico may indicate the places of doorways.

[b] The dimensions of these in feet are: (3) 12½ by 10; (4) 13 by 26, but originally two rooms, one about 8½, the other about 16½ long; (5) (6) 11½ by 15½.

[c] In the western part of the corridor and near its north wall is a length of foundation of the same date which seems to belong to some abandoned plan. It may, however, possibly have carried a narrow stair to an upper storey.

of rooms, but extending clear beyond them eastwards for 4 feet, and then returning southwards for 19 feet and abutting against an older structure attached to the south-east angle of the house. Just to the north of this the later wall passed over the remains of a pavement of red *opus signinum*.

The older structure above referred to did not belong to House No. 1, but formed an entrance or porch to a series of chambers attached to another and much larger building (House No. 2) which occupied the south-west corner of the *insula*.

This building resembles Block I. in plan, in that it exhibits a large enclosed area or court, with a transverse chamber at the west end, and a corridor or colonnade to the street along one side; in this case the south as the main building stood east and west.

The transverse chamber (1) was $33\frac{1}{2}$ feet long and $12\frac{1}{2}$ feet wide. The large area (2) was $50\frac{1}{2}$ feet long by $33\frac{1}{2}$ feet wide; in its north-east corner a rectangular space (2*) measuring 11 feet by $6\frac{1}{2}$ feet has been walled off. The corridor or colonnade (3) was $8\frac{1}{2}$ feet wide, and as most of the side next the street has disappeared there may have been there a line of wooden posts. The corridor extends beyond the main building to a block of chambers to be described presently. Between this block and the court, and built on to the latter, was a passage (4)[a] about 7 feet wide leading from the corridor to the chambers before mentioned on the north-east.[b]

These chambers seem originally to have been two in number, and of about equal size. The southern has, however, been subdivided into a narrow (5) and a broad (6) inner rooms, leaving a space (7) on the east to serve as a passage to the northern chamber (8) beyond.[c] These new inner chambers had floors of *opus signinum*. The northern chamber has a block of solid masonry of unknown purpose projecting into its north-east corner, and to the same corner is attached externally the entrance porch (9) already noticed. From a comparison of the plan of this building at *Calleva* with those of others in Pompeii, which are known to have been *tabernæ*, Mr. Fox is of opinion that this too was a small inn. The area (2) he suggests was a yard, with stabling (1) at the west end and a watering place (2*) at the opposite end. The corridor (3) may have served as a shed for

[a] This covers the site of a well $14\frac{1}{2}$ feet deep with a wooden tub lining the bottom.

[b] Underlying the western part of these chambers is part of a wall of earlier date.

[c] The dimensions of these rooms in feet were: (5) 21 by 8; (6) 17 by $13\frac{1}{2}$; (7) 17 by 16; (8) 25 by $19\frac{1}{4}$; (9) $10\frac{1}{2}$ by 9.

carts, for which there is also ample room in the open space north of the building. The block of chambers on the north-east probably had other rooms over them and formed the living part of the house. From its proximity to the *forum*, an inn at this spot would be very conveniently placed.

Whatever was the use of the series of chambers north of House No. 2, in later days they evidently were done away with, as they were partly overlaid by the gravel foundations of a large rectangular enclosure extending westwards towards the street.

It has been noted above that the corridor south of House No. 2 terminates eastwards against another building. This structure, which may be called Block II., is about 25 feet square on plan, and was subdivided into a larger and a smaller room (1, 2), with a narrow space (3) on the east.[a] Mr. Fox suggests that the building was a public latrine.

Along the northern margin of *Insula* V. and occupying about half of the available space east of Block I. was an interesting example of a house of the corridor type (House No. 3). It showed towards the street an unbroken front of 106½ feet, behind which was a series of five or six rooms with an external corridor of communication facing south. Unhappily the eastern end of the building partly underlies the modern road through the town, and the walls towards the north-east corner have been destroyed by ditch-making and hedge-planting. The westernmost chamber (1) had originally a pavement of fine mosaic bordered by the usual coarse red *tesseræ*, but only some patches of the latter remain against the west wall. There was nothing to show how the next room (2) was floored, but well below the possible floor level are the foundations of a destroyed or projected cross wall. Room 3 has round it considerable remains of coarse red mosaic, but the middle of the room, which may have had a fine mosaic panel, was covered with the roots of a large tree and could not be examined. Room 4 has a patch of flintwork on one side and remains of some burnt tiling on the other, and perhaps formed the kitchen. Beyond it is what in the absence of partitions seems to have been one large room (5), but it is quite possible that it was subdivided, and that here may have been the winter rooms.

The corridor (6) traversing the southern side of the house was 8 feet wide. It was originally open from end to end and paved with coarse red mosaic with a middle panel of drab sandstone. But there were subsequently formed in its western portion, by the simple process of building cross walls, two chambers,

[a] The area of these in feet was: (1) 15 by 12; (2) 15 by 6¼; (3) 21 by 3¼.

each 16 feet long. The innermost (7) had a pavement of fine mosaic, with an unusually narrow border of only two rows of coarser *tesseræ* along the walls, but had been almost entirely broken up and destroyed.[a] The other room (8) had for its floor the banded red and drab mosaic of the original corridor. East of it the corridor seems to have received a new pavement, formed of red *tesseræ* only, laid directly upon the older floor. Towards the further end the corridor had lost its original character, and its 18-inch outer wall of flint-work gave way to a broader 2-feet foundation of chalk blocks. The change occurs on the other side of an opening about 6 feet wide, opposite the entrance to the kitchen, with a broad flint foundation for a sill, which extends westwards some feet further. The eastern end of the corridor has gone, and in its place are the gravel foundations of a room (9), about 17 feet square, the southern half of which retained part of a mortar floor. In the external angle formed by this room and the corridor was another added apartment (19), but of smaller area, also marked by gravel foundations.[b]

A little to the south-east of House No. 3 are the foundations (Block III.) of another of the mysterious square buildings that were so common at *Calleva*. This measured internally 16 feet by 19 feet, and had walls of flint rubble, with ironstone blocks at the corners. The entrance was apparently by a wide opening in the east side. There was nothing to show how the building had been floored, but in and about it were found quantities of gaily painted wall plaster, chiefly red, with blue, yellow, and white flowers, and many fragments of roofing tiles.

About 30 feet to the east of Block III. was an oblong excavation 9 feet long, $3\frac{1}{4}$ feet wide, and 8 feet deep, apparently a saw pit.

The rest of the *insula* was devoid of buildings, etc. but a short length of foundation was met with near its southern margin, and east of it, close to the street, was the wreck of one of the usual small round hearths. The street boundaries on the north, east, and south sides of *Insula* V. must have been formed by hedges or palisades which have left no definite lines behind.

Insula VI. was separated from *Insula* V. by a street about 25 feet broad, the surface of which was laid with the usual hard layer of gravel. Down the middle of it was a roughly made trench about 3 feet wide, and varying in depth

[a] Only a fragment of a braidwork border remained.

[b] The dimensions of the various rooms of House No. 2, in feet, were as follows: (1) $14\frac{1}{2}$ by 17; (2) $16\frac{1}{2}$ by 17; (3) $14\frac{1}{2}$ by 17; (4) 16 by 17; (5) $32\frac{1}{4}$ by 17; (7) (8) each 16 by 8; (9) 17 by $6\frac{3}{4}$; (10) 10 by $7\frac{3}{4}$.

from a foot towards the west to 6 inches towards the east. This trench is a continuation of a drain which was found in 1892, issuing from beneath the eastern gate of the *forum*.

From the position of the buildings north and south of it the western end of the street seems originally to have been 30 feet wide, but the direction of the street was subsequently altered towards the east, as is shown not only by the drain down the middle, but by a line of later wall forming the northern boundary of the *insula*. From this it can be seen that *Insula* VI. measured 231 feet from north to south, and a return of the boundary wall down the east side fixes its breadth at about 270 feet. Like the *insula* north of it, *Insula* VI. was bounded by streets on all four sides. (Plate XXI.)

The north-west angle is occupied by the foundations of a somewhat puzzling structure (Block I.), part of which was uncovered in 1892. It consisted in the first instance of a L-shaped block, 65 feet long towards the west, and about 100 feet towards the north, with a corridor or colonnade $7\frac{1}{2}$ feet wide covering both street fronts. On the north the outer margin of the corridor ran on for a considerable distance, probably as a boundary wall to the *insula*. It was also prolonged in like manner southwards for about 40 feet, but then turned inwards; the return is, however, partly covered by a later building.

The western limb of the block contained a series of four chambers, the southernmost of which was floored with coarse red tile *tesseræ*. There may have been other chambers in continuation southwards, but the earlier arrangement in this direction has been obliterated by a series of alterations which were thus described in our report of the excavations in 1892: "The fourth chamber has been enlarged westwards to twice its former area, and the destroyed chambers on the south replaced by a range of three large and two small[a] rooms, set forward on the old line of the street. These open into each other by doors. The two end rooms had oblique openings or drains through the back walls, and in the southernmost through the end wall also, which seem to show that some trade was here carried on in which water was used. From the discovery just outside these chambers of a number of fragments of thin veneers of Egyptian red porphyry it is possible that a lapidary or marble-worker may have had his workshops here. South of these chambers, in what must have been an enclosed yard, was a pit or well, the bottom of which appears to have been covered by a board pierced with

[a] Under the eastern of these were the remains of a hypocaust of the earlier building, which also here terminated southwards. [Original note.]

holes. To the south of the yard are fragments of a house,[a] which it is presumed occupied the south-west angle of the *insula*, but only some traces of walls and part of a large hypocaust remained."[b]

The northern limb of Block I. contained six divisions, of which the middlemost was a passage 5 feet wide, or it may have contained the staircase to an upper storey. The westernmost division was a room measuring 23 feet by 17 feet, and the other four had a uniform length of 17 feet, and were each 10 feet in breadth. In none of the divisions of the building except that already noted was there any indication of the flooring; possibly therefore it was of wood, the removal of which has left no traces behind. As the building seems hardly of a domestic character, and no clue to its use was found in or about it, it can only be conjectured to have formed an extensive range of shops, from one to another of which the good folk of *Calleva* could have passed under cover of the external colonnade.

As Block I. stands back from the altered lines of the streets, it may have been destroyed before the changes noted above were made.

In tracing the foundations of the northern limb of Block I., which were about 13 inches deep, it was noticed that those of the easternmost chambers (7-10) had been laid upon, or in trenches cut through, a remarkable deposit of bones. This deposit extended some feet south of the building, and eastwards as far as an adjoining house, and consisted almost entirely of the lower jaw bones of oxen, with which were intermingled fragments of the usual Roman pottery. A more detailed account of the deposit by Mr. E. T. Newton, and of the deductions to be drawn from it, is given below.

A few feet to the east of Block I. begin the foundations of a large building (House No. 1) of more than usual interest, with a frontage to the street of 111 feet.

Its plan at first sight seemed to consist of two distinct wings of unequal size lying on opposite sides of a cloister or enclosed courtyard, but a closer examination of the remains showed that the western wing was originally a distinct house to which the courtyard and eastern wing had been added subsequently. The result is a plan approximating more closely to that of a Pompeian house than is usual in these northern climes.

The earlier house was of the corridor type, and consisted of a block of five

[a] Block II. on plan, see Plate XXI.

[b] *Archaeologia*, liii. 570.

rooms standing north and south, with one end on the street, with a corridor along the east front, and other rooms connected by a corridor on the western side.

The house was probably entered from the street by the square chamber or lodge (1) at its north-west corner, from whence a passage or ante-room (2) paved with red and drab mosaic led to the corridor of communication (3) beyond. Another corridor (4) led southwards from the lodge to two rooms (5) (6), with pavements of red mosaic, at the south-west corner of the building. From the main corridor (3) opened out two nearly square rooms (7) (9) with a narrower one (8) between, and at the south end there was a wide opening with brick jamb-piers into another square room (10). The section of corridor in front of this seems originally to have been cut off from the rest to form an ante-room (3*) to it.[a] All these rooms, as well as the eastern corridor, were paved with red tile *tesseræ*, but that in room 8 had been broken up. There were no signs of flooring in the lodge (1) or in the passage (4) leading southwards from it.[b]

The addition to the first house was carried out in the following manner. The longer section of the eastern corridor (3), which was exactly 50 feet long, was taken to form one alley of a quadrangular cloister or courtyard (11) laid out to the east, and from it wide openings were made into other alleys north and south of the courtyard, the one (12) paved with drab *tesseræ* with a red border on the south side, the other (14) with red *tesseræ* only.[c] From the northern alley (12) another (13), paved like it with drab mosaic with one red border, was returned southwards for 33½ feet as far as an arch or other contracted opening carried by square piers. The southern alley (14) crossed this opening and then returned southwards in line with the east alley for 39½ feet (15). This extension was also paved with red mosaic, with patches of drab, probably the result of repairs.

Eastwards of this new south alley lay the main block of the added building. Like the earlier house to the west it stood north and south, and had a total length of 87 feet, thus extending further southward than the western block by about 17 feet. It contained only four subdivisions. The northernmost (16) measured 30 feet by 19½ feet, and had at one time a mosaic floor, formed wholly or in part of drab stone *tesseræ*, but this had been broken up. Within the room

[a] The red mosaic floor of this ante-room had under it the remains of another, of fine chalk *tesseræ* with a border of coarser red, and below this was an earlier floor of *opus signinum*.

[b] The probable level of this was covered with a list of clay, derived no doubt from that which filled the half-timber work of the walls.

[c] The mosaic floors of the north and south alleys were carried through the openings from the older corridor and joined the mosaic floor of that with very definite lines.

had also been inserted a hearth or hearths of some kind, but so fragmentary were the remains that they can not be indicated on plan. The next room (17) was only half as large as 16, but nothing was left to indicate the nature of its floor, which may therefore have been of wood. The next room (18) to the south was of ample proportions, 24½ feet long by 20¼ feet broad, and had originally a panel of fine mosaic, 10½ feet square, in the middle of the floor, with a broad border of the usual coarse red mosaic. Owing unfortunately to its nearness to the surface the finer panel had been greatly injured, and the white ground of soft chalk had practically dissolved away, leaving behind only the harder black *tesseræ* of a fretwork pattern, and the pink and black of the braidwork bands that bordered and divided the design. An unusual feature about this mosaic is that most of the pink *tesseræ* in the braidwork were made of pieces of the so-called Samian pottery, instead of the more usual fragments of red tile. Beneath the eastern margin of the flooring of this room were found traces of an earlier pavement of drab stone mosaic. The southernmost division of the block (19) was only 8½ feet broad, and may have been a passage. There was nothing to show how it had been paved or floored.

The two northernmost rooms (16, 17) of the block were overlapped on the east by a corridor or pentise (20) 9½ feet wide and 46½ feet long, the floor of which had been destroyed. At its southern end was a continuation of it (21) of somewhat interesting character. It was 8½ feet wide, and at least 17 feet long, but all beyond has been utterly destroyed. What remains formed apparently part of a steeping-tank, about 3 feet deeper than the level of the mosaic floor in room 18, and floored and lined with wood. The sides had been entirely removed, but the floor still remained, of thin boards about a foot wide, but badly decayed, laid upon rough balks from 5 to 6 inches square. These balks extended from side wall to side wall, but the boards were stopped off 14 inches short of the walls, as if the tank had sloping sides. In places there were indications of the floor having consisted of a double layer of the thin boarding. When first discovered the bottom of the tank was covered by a deposit of clay 2 feet thick, from which was extracted part of the shaft of a small and much decayed stone column, and various pieces of pottery.

The purpose for which the tank was constructed is quite uncertain. Inasmuch as any water used in connexion with it must eventually have found its way into the immediate vicinity of the baths discovered in 1903, any such process as tanning or fulling is at once ruled out, unless it may be assumed that the baths were then disused, and that the tank belongs to a late alteration.

Another matter difficult of explanation, not only with regard to the house under notice but to every other domestic structure in *Insulæ* V. and VI., is the absence of any trace of winter rooms. In no case have we found any vestiges of a hypocaust, or of the rarer fireplaces in the walls. The destruction of so much of the flooring would of course obliterate any possible traces of open braziers, such as have occasionally been met with, but in the absence of both hypocausts and fireplaces it can only be suggested that such was the method of warming.

Reference may here be made to another matter in connexion with the house. In the south-west corner of Room 17 (in the eastern wing), and parallel with the south wall, there was made an unexpected discovery in the shape of a shallow grave under the floor level, containing the bones of a human skeleton. Although most careful search was made, nothing whatever was found with the remains, a description of which appears in Mr. Newton's note below. The skeleton lay at a depth of 4 feet from the present surface, and 2 feet below the top of the foundations of the house.

Before leaving House No. 1 it should be noticed that immediately to the south of its western block were uncovered parts of the walls and foundations of some rectangular structure (Block III.) of uncertain extent and use.

The only other building of importance in *Insula* VI. stood along its southern margin. This was a house (No. 2) of a type somewhat rare in Calleva, with a L-shaped plan, forming a transition from the corridor to the courtyard type. The main section of the building consisted of a row of four chambers abutting upon the street with a frontage of nearly 100 feet. In rear of the western half of this was the rest of the house, comprising a short block of chambers with a corridor on each side, and a transverse wing at the north end.

This wing contained two rooms (1, 2) each about 17 feet square, and paved with coarse red mosaic. The block south of them consisted of a room (3) also floored with red mosaic, a passage (4) 8 feet wide, and another room (5) which probably had a wooden floor. The passage had down the middle a mosaic panel with a simple pattern of interlocking rectangles, alternately of red and drab, with bordering stripes of the same colours, all effectively executed in the usual coarse *tesseræ*. The corridors (6, 7) flanking these rooms had also coarse mosaic pavements of red-tile *tesseræ*.

From the southern end of the eastern corridor (7) there was a return corridor (8), which had a pavement of drab-stone mosaic with red borders. It extended eastwards for 33 feet behind the chambers lining the street, and led to a long narrow room (9) at the north-east corner of the block. There was nothing

to show how this room had been floored. The easternmost (10) of the chambers lining the street was $33\frac{1}{2}$ feet long and 18 feet wide. Its flooring had completely disappeared, but against the north wall were the remains of a circular hearth. The next room (11) was 18 feet square and had also lost its flooring. The rest of the block seems originally to have consisted of two square chambers (12, 13), one at least of which (12) was paved with red mosaic. But at some later date the two seem to have been thrown together, forming one large room 36 feet long and 18 feet wide.

It will be seen from the plan that the wall which once divided these rooms was returned at the north end in a somewhat odd way in front of a break in the main wall. Within this break was found, at 21 inches below the level of the corridor pavement, a framework formed of stout baulks of wood enclosing a space from 3 to 4 feet square. Within and beneath this appeared the mouth of a well, only 27 inches square. The well, however, was not set square with the framework nor was it in the middle of it, but partly under its northern side. It was lined throughout with oak boarding to a depth of $7\frac{3}{4}$ feet, or 9 feet from the top of the framework above. Owing to the small size of the well the clearing out of it was a difficult and dirty job, and much hampered by the inflow of water. Nothing of interest was found in it but a few fragments of pottery.

The unsymmetrical disposition of well and framework suggests that the one was constructed above the other for some reason quite unconnected with the use of the well. What the reason was it is very difficult to say. The woodwork is clearly older than the house, since the timbers pass under the foundations of its walls. There were also found below the floor level of the room to the south, at the same level as the framework, a number of other pieces of worked timber in the positions shown in the plan. Beyond recording the facts of the discovery it seems hard to deduce from them any reasonable theory in explanation.

Connected indirectly with the house under notice was another find of some interest.

A little to the north-east of the building there was found, at a depth of 30 inches from the present level, the top of a wood-lined well. This well was constructed in somewhat unusual fashion. The upper part, for a depth of 4 feet, measured 42 to 45 inches across, and had at each corner an upright post, about 3 inches square, into which the boards lining the well were grooved. The lower part was of much smaller dimensions, 30 by 34 inches, and lined like the upper part with oak boards, each about 15 inches wide. The total depth of the well was $10\frac{1}{2}$ feet, with a hard gravel bottom. Nothing of interest was found in it.

In digging round the well a number of pieces of boarding and timber came to light, more particularly to the south and south-west. Further investigation showed that some of these were loose pieces of worked and unworked stuff, not unlike those found by the well within House No. 2. The uncovering of one piece of boarding led, however, to a curious discovery. The board itself was followed southwards for 19½ feet, and was then seen to be joined by another in line with it. This in turn extended in one piece for 24½ feet, and was followed by a shorter length of 10½ feet, which was not quite in the same straight line. On both sides of these boards, or rather planks, were others set on edge, so that the whole formed part of a long wooden trough. The bottom planks were 12 inches wide and supported at irregular intervals by cross bearers, which were long enough to carry the sides also. The planks forming these were 15 inches wide and 3 inches thick, and the pair that edged the middle section of the trough were each 25 feet long, and had evidently been sawn out of the same tree. All the planking, etc. was of oak. The bottom planks were joined by a bevelled lap, but the sides had halved joints without any traces of pegs or pins. How the sides had been kept upright there was nothing to show, nor were any definite traces found of any covering to the trough. The trough itself was 2½ feet below the top of the well, or 5 feet from the present surface, and began about 2 feet to the west of its southern corner. The remaining portion was 55 feet long, but seems originally to have extended further. As will be seen from the plan, its southern half is overlaid by part of House No. 2, the building of which seems to have caused the shortening of the trough and its consequent disuse. The object of the trough, which had only a slight fall, seems to have been to carry off the overflow of the well in the direction of the marshy ground southwards. Where it has been cut off by the later house, the southern wall of the latter has been built upon piles. Nothing of importance was found in the clearing out of the trough save the much decayed fragment of a short stone column.

Some 40 feet westwards of House No. 2 was another wood-lined well. It was 3 feet 9 inches square and 9 feet deep, with boards from 6 to 8 inches wide. Nothing but rubbish was found in it.

Yet one more well was found in *Insula* VI. in its north-west quarter. It was 12½ feet deep and had at the bottom a much decayed wooden tub, 6 feet 3 inches high, formed of 25 staves. Round this was a mass of clay pugging, no less than 3 feet thick. In the well amongst other odds and ends were an iron knife, portion of a human skull and other bones, and a perfect example of a pick formed of a stag's horn.

It had been our intention originally to extend the season's work to the ground south of *Insula* VI. which had been partly investigated in 1892, but as the excavations proceeded southwards an unlooked-for difficulty was experienced. This was the increasing depth of the soil that overlay most of the buildings in *Insula* VI. In places the depth was as much as $3\frac{1}{2}$ feet, but the soil was by no means evenly distributed. It consisted throughout of the same black stuff which overlies so much of the south-east quarter of the town, and was suggested in last year's report as having been formed at the bottom of a large and long stagnant

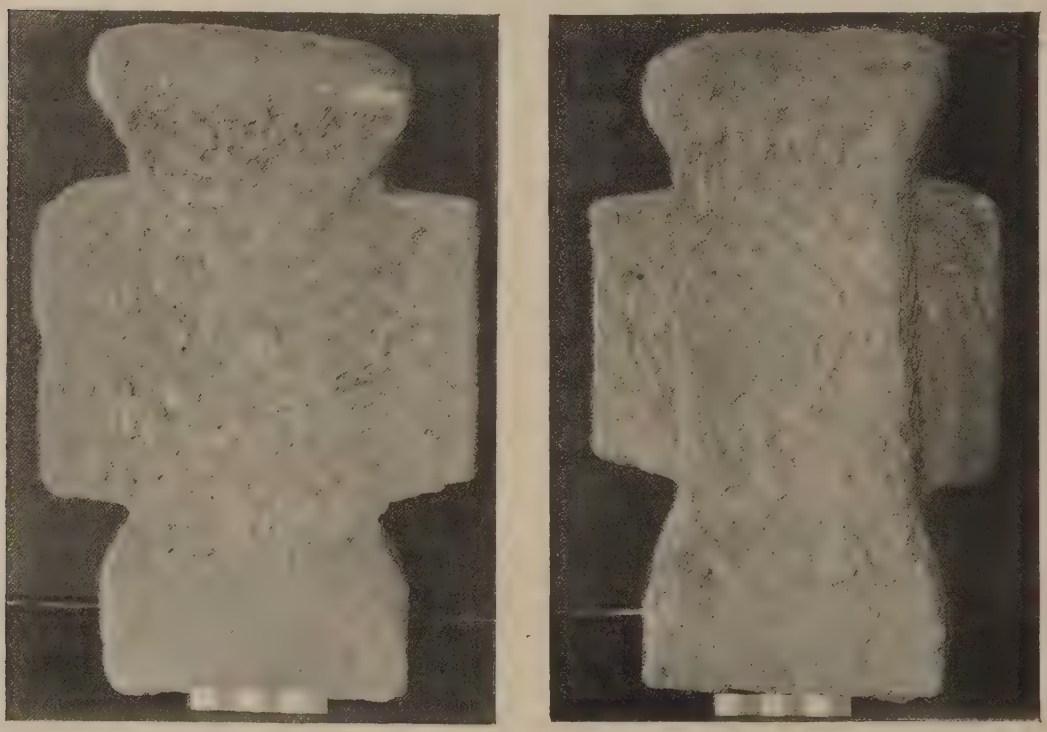


Fig. 2. Unfinished winged altar (front and back views) found in *Insula* V.

pond. But the difference in level would hardly permit of this having extended over *Insula* VI., and the irregularity in the depth of deposit there points rather to its having been removed as thick mud from the pond in question and spread upon the higher ground that bordered it. The trenching of this deposit took up so much more time than had been reckoned for that the further excavations southward had to be postponed to another season.

The comparatively few pits found in *Insulæ* V. and VI. did not yield many objects of importance. From those in *Insula* V. came the large *pelvis* or mortar exhibited, a curious little object carved in chalk, and several of the better specimens of glass; also a quantity of plum and cherry stones.

From the trenches in *Insula* V. came also an unfinished example of a winged altar (fig. 2), and another unfinished stone figure of a couchant lion (fig. 3). The latter was probably intended for the gable of some important building. The winged altar is of considerable interest, not only on account of its unusual character, but because the unfinished condition of both it and the lion shows that such objects were carved at *Calleva* from blocks of stone brought into the town in the rough. Mr. Fox thinks that the wings of the altar are constructional, to enable the altar to be built in to and form part of some architectural composition.

Fig. 3. Front and side views of an unfinished image of a couchant lion found in *Insula* V.

The casual finds of objects in bronze, iron, and bone do not call for any special notice, but the glass, though fragmentary, is noteworthy for the number of colours represented as well as for the rarity of some of the fragments themselves. Among them is a large piece of another bowl of the beautiful sapphire blue mottled glass, like that of which all the fragments were recovered in 1895, as well as nearly the whole of a flanged bowl of clear glass, of similar form to bowls hitherto found only in pewter and pottery.

A short length of fine gold chain, part of a figure of Venus in white clay, portions of some large trays of Kimmeridge shale, and a fragment of a small white marble statuette were among the more miscellaneous objects.

The pottery is not so well represented as regards quantity as in some former

years, but a number of interesting vessels have been recovered, and in quality some of the fragments are of quite special character, especially those belonging to red-ware vases with decorations in slip, or grooved by the action of a wheel.

The patient examination by our colleague Mr. A. H. Lyell of the contents of pits, etc. for seeds and other vegetable remains has been continued, and the results checked by Mr. Clement Reid, F.R.S., who has kindly furnished the following note upon them:

"Mr. Lyell's search for plants has again yielded a large number of seeds; but most of the plants have already been recorded. We can only add six species to the list, and all but one are wild plants of little interest. The novelties are

Ranunculus aquatilis, Linn. (Water-crowfoot.)
Stellaria uliginosa, Murr.
Ilex aquifolium, Linn. (Holly leaves.)
Anethum graveolens, Linn. (Dill-seed.)
Cnicus palustris, Hoffm. (Thistle.)
Alisma plantago, Linn. (Water-plantain.)

Four out of the above six plants are aquatic species, which suggests the close proximity of a pond.

Attention was drawn last year to a peculiar seed allied to parsnip, which could not be satisfactorily identified. It has now been discovered that this seed, which occurs not uncommonly, and is generally associated with coriander, belongs to the dill. Dill-seed, like maw-seed (opium-poppy) and coriander, is still much used as a condiment."

Mr. E. T. Newton, F.R.S., has also been good enough to examine, as before, the mammalian and other bones found in the course of the season's work, and has favoured us with the following report:

"As in previous years a large number of bones have been exhumed during the excavations, most of them belonging to the common forms which have already been recorded, as will be seen from the list appended. Among these, however, there are some which call for special notice.

Human Remains.—An entire human skeleton was found in one corner of a room (17 in House No. 1, *Insula* VI.), and the position of the bones and their proximity to the walls makes it almost certain that the body was buried in the

room. It is well nigh impossible that the excavations for the foundations of the two walls forming the corner of the room should have just escaped touching the skeleton, if it had been there when the walls were built. But whether the burial took place when the room was entire, or after it had become a ruin, there is no evidence to show. These human remains await a detailed examination; but in the meantime it may not be without interest to note that they belonged to a fully adult person with well-worn teeth. The skull is broad (*brachycephalic*) and the shin bones (*tibiæ*) are flattened (*platycnemic*).

Portions of the skull and arm bones of a child about 12 to 14 years of age were also met with in a tub-lined well in *Insula* VI.

Cats.—The remains of cats have been found on several occasions during the explorations at Silchester;[a] but, as the Romans were thought not to have known the domestic cat,[b] these remains seem to have been regarded as of post-Roman date. Some of these feline remains were, however, found in certain of the pits which were examined, and at such a depth from the surface as makes it very unlikely that they were other than Roman.

During the present year (1905) cats' bones have again been found; and these, together with much Roman pottery, were met with at some depth from the surface in Pit 2, in *Insula* V., making it in the highest degree probable that they are of Roman age. It may be further stated that, like the feline remains referred to in the earlier reports, these bones cannot be distingished from similar parts of our modern domestic cat.

Dogs.—Many skulls and bones of dogs have been found, and indicate several different kinds similar to those mentioned in earlier reports; like them they differ not only in size, but also in their proportions. The large number of canine remains from Silchester, now stored in the Reading Museum, would be of great value to anyone working out the different varieties of dogs known to the Romans.

Oxen.—A remarkable deposit of ox bones, or rather of ox jaws, has been unearthed this year, the nature of which has yet to be explained. This deposit was met with in four adjoining rooms, 7, 8, 9, 10, in Block I. *Insula* VI. when the trenches were made along each side of the walls, and it was present over the whole of these rooms and extended outside the walls for about 4 feet to the south, and eastwards for about 20 feet to the wall of the adjoining house. The deposit, at one place where it was measured, was about 14 inches thick, and occurred at a

[a] See reports for the years 1891 and 1899, *Archaeologia*, liii. 287, and lvii. 111.

[b] See Rolleston, "On the Domestic Cat," *Scientific Papers*, etc. 1882, ii. 503.

similar depth from the present surface of the ground; this may be taken as the approximate condition over the area of the four rooms, but there was no indication of the floor-level. The fact that this deposit contained little else besides ox bones had already been noticed by Mr. Arthur H. Lyell and Mr. Mill Stephenson; and when I visited the excavations in August a portion of this deposit (about 3 or 4 feet square) had been uncovered, so that it might be dug out in my presence. The result was very striking, for scarcely any bones but the lower jaws of small oxen were turned out, and these in such numbers as practically to constitute the mass of the deposit. A few portions of *scapulæ* were noticed, but no other parts of oxen. One or two bones of horse, sheep, pig, and dog were found. No fewer than 71 *rami* were counted, dug out in my presence from this small area, which was little more than a square yard of the deposit and about 14 inches thick.[a]

Upon close examination we found that in a few cases bones could be traced passing beneath the walls; but on the whole the base of the walls corresponded with the bottom of the deposit of bones. From this we conclude that these bones were in place when the foundations of the walls were laid, and that the deposit had been cut through in order to lay the foundations on the ground which underlies the deposit of bones; but in a few instances some of the bones were overlaid by the foundations of the walls. It seems pretty clear, therefore, that there was an accumulation of ox jaws at this place when the walls were built, that is at some time during the Roman occupation of Britain. The deposit is not necessarily pre-Roman; but it seems probable that it was of considerable antiquity when the foundations of these walls were laid, otherwise such an accumulation would scarcely have been allowed to remain as the floor of a room. Fragments of Roman pottery, etc. were found among the bones, and point to the deposit being of early Roman date; these include Samian ware, also an iron finger ring with a paste gem, and some odd fragments of bronze.

It is difficult to account for this accumulation of lower jaws (with a few *scapulæ*), and practically of no other parts of the skeleton, unless they were brought together for some particular use, perhaps for purposes of manufacture. The deposit can hardly be a kitchen midden. The thinner parts of the jaws and of the *scapulæ* may have been used for making bone buttons (some such *scapulæ*

[a] My Lyell has calculated that if the total area covered by the jawbones averaged 50 feet by 25 feet (= 1,250 square feet), and 9 square feet yielded seventy jaws representing thirty-five oxen; then 1,250 ÷ 9 = 139, and 139 × 35 = 4,865 oxen. Allowing for a deduction of forty per cent. for an average thickness, this gives a possible total of 2,520 oxen represented by this deposit of jawbones.

may be seen in the Reading Museum), and if so this deposit would be the refuse heap of such a manufactory. The greater part of a *scapula* could be utilised for such a purpose, while a large part of a lower jaw would be unsuitable; hence, in such a refuse heap, the parts of the lower jaws containing the teeth would be likely to predominate, while the small parts of the *scapulæ* unused would not attract attention. I am not aware that any of the fragments found in this deposit gave indications of having been used for such a purpose."

List of Animals exhumed during Excavations of 1905.

Mammals.	*Birds.*
Man.	Rook or Crow.
Dog.	Fowl.
Cat.	Pheasant.
Horse.	Wild Duck.
Ox.	Widgeon.
Sheep.	Goose.
Red Deer.	Crane.
Roebuck.	
Pig.	*Fish.*
	Gudgeon.

Mr. J. C. Challenor Smith, F.S.A., has also been good enough to furnish the following note on the discovery of a section of one of the Roman roads that led from Silchester:

"Henry Maclauchlan in his Survey of Silchester published in *The Archæological Journal* for 1851[a] mentions the discovery of fragmentary remains in two gardens and a meadow on the west side of the present modern road at Latchmere Green, two miles south of the city. The spot where these remains were found lies on the presumed line of the Roman road from Silchester to Winchester. In order to follow up the clue afforded by Mr. Maclauchlan's discovery, a trench was cut during the winter in the garden of one William Ham, which is adjacent to the modern road at a point where a small brook separates the parishes of Bramley and Pamber. At a depth of between 5 and 6 feet the road surface was found. The road was 20 feet in width, sloped downwards from the middle to the sides,

[a] Vol. viii. 227-246.

and was formed of flints set in a bed of blue clay 1 foot in depth, which in turn rested on a gravel substratum. Its eastward edge is 88 feet 6 inches from the middle of the modern highway. A section of the soil taken over the crown of the road showed 1 foot of dark mould, and beneath that 3 feet of yellow clay strongly impregnated with iron, probably the deposit of many centuries from the adjacent brook. The site of this road falls upon the line indicated in the Ordnance Survey as conjecturally that of the old road from Silchester to Winchester. During the work several fragments of coarse pottery were found."

In conclusion, thanks are due to our colleague Mr. J. A. B. Karslake and to Mr. J. C. Challenor Smith for the loan of photographs and slides, and to Mr. R. Garraway Rice for a difficult photograph of a well in *Insula* V. We are also greatly indebted to Mr. Clement Reid, Mr. E. T. Newton, and Mr. J. C. Challenor Smith for their kind and valuable co-operation, and for the notes contributed by them.

The accompanying block plan (fig. 4) shows the progress made in the excavation of the site down to the end of 1905.

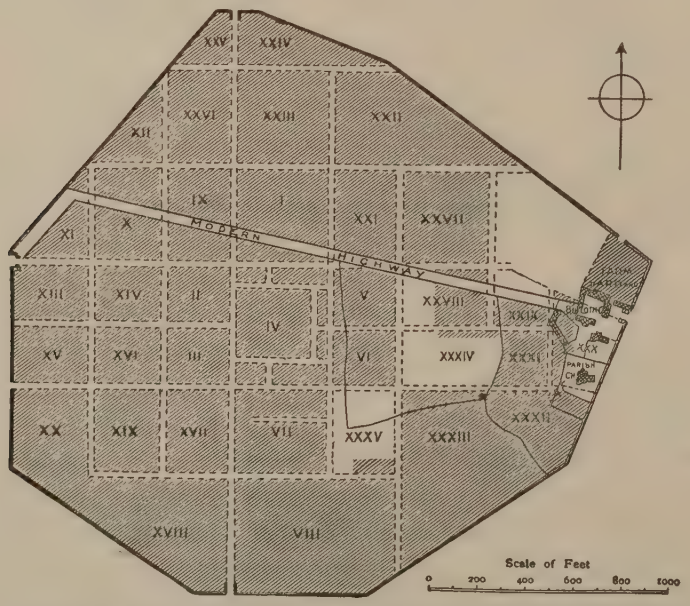


Fig. 4 Block plan of the Roman town of Silchester, showing portions excavated down to the end of 1905.

X.—*Recent Discoveries in connexion with Roman London.* *By* Philip Norman, *Esq.*, *Treasurer, and* Francis W. Reader, *Esq.*

Read 21st and 28th June, 1906.

SHAFT OPPOSITE CARPENTERS' HALL.

Early in January, 1905, the street called London Wall was opened by the Post Office authorities for the purpose of laying telephone mains. Operations were begun at Moorgate Street and were carried in an easterly direction, a deep trench being dug in the middle of the roadway. The excavations had extended past Salisbury House as far as Circus Place, when it was noticed that among the *débris* thrown at the side of the road were quantities of ragstone and Roman tile, showing clearly that the city wall was being cut into.

It will be remembered that this is the site once occupied by Bethlehem Hospital, at the back of which the City wall formed a screen, dividing it from the northern side of London Wall Street. The fact has been recorded by J. T. Smith in his *Ancient Topography of London*, wherein are two excellent illustrations showing the appearance of the wall at this spot in 1812 and 1814. Smith states that the wall then remained to a length of 714 feet, extending from opposite the north end of Winchester Street to near the site of Moorgate. Its total height above the pavement level was 16 feet, of which the lower half was cased rubble, the upper portion being a brick wall surmounted by battlements and coped with stone. A similar piece of wall is still to be seen a little to the west of Moorgate Street, in the old churchyard of St. Alphage, which was closed by Act of Parliament in 1853.[a] In this fragment the brick battlements and some

[a] The present church of St. Alphage, on the opposite side of the way, is now threatened with destruction. It has special interest from the fact that the lower stage of the tower is medieval, having formed part of the chapel of Elsing 'Spital. In the *Architectural Review* for March, 1907, there is a note on it by Mr. Norman with measured drawings.

of the coping stones yet exist, although it is difficult to recognize them, as they have been built up into the side of a modern warehouse. Bethlehem Hospital was demolished in 1817, and about that time the portion of the wall above ground was also destroyed, but the Roman foundations beneath the street level were left undisturbed, the pavement being formed over them. At a recent rebuilding of the houses on the northern side the road was widened and carried further to the north, leaving the lower portion of the wall under the roadway.

To return to the excavations of last year. It was ascertained that the trench for the telephone mains was being cut right through the core of the lower portion of the wall, the top of which was met with at a few feet from the surface of the roadway. The trench was 2 feet 6 inches wide and 8 feet 6 inches in depth, and the task of cutting through the compact Roman masonry was one of great difficulty, and was as unexpected as it was unwelcome to the contractors. At intervals manholes were formed, one of these being sunk at a little distance east of Moorgate Street and just opposite to No. 57, London Wall. Its width was 6 feet 3 inches, passing through the centre of the wall neither face of which was cut into, and although it extended to a depth of 15 feet 3 inches, the base of the wall was not reached. However, from indications seen in digging at the side, for the purpose of connecting the wires to the houses, it appeared that the foundation at this point was not more than about 1 foot lower, or 16 feet from the surface. The cement floor having already been laid it was not possible more nearly to determine this point.

As the telephone mains were to be laid to Bishopsgate, this appeared to be a good opportunity for observing how the Roman wall had been constructed across the stream, known later in its attenuated condition as the Walbrook, the point of juncture being between Circus Place and the church of All Hallows. We hoped that while the roadway was up the excavation might have been carried a little further and extended along the face of the wall, by which means a complete section of the bed of the stream might have been shown. The matter was referred to the Post Office authorities, and permission was readily obtained to do anything that would not hinder the work of laying the mains, on the understanding that the expense incurred should be borne by the Society of Antiquaries. Instructions were accordingly given for the furtherance of the investigation, in which the Post Office officials from the first evinced a very sympathetic interest. This is worthy of record, as in former years authorities in the City of London have been by no means always favourable to inquiries of the kind we had undertaken.

During the time that elapsed while the necessary arrangements were being

made, the work had progressed considerably further down the street, and to open a section across the width of the stream was not found to be practicable. We therefore determined that the best thing to be done was to sink a shaft as nearly as possible in the middle of the bed of the stream, running down the outer face of the wall. The point selected, opposite Carpenters' Hall at the corner of Throgmorton Avenue, was the nearest one available to the middle of the stream, as far as this could be calculated by the position and levels of the culverts recorded by Sir

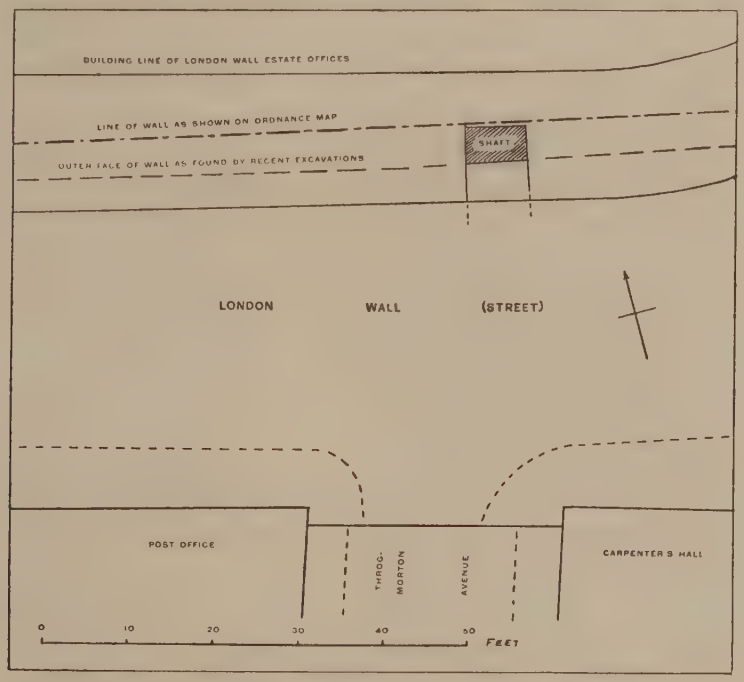


Fig. 1. Plan showing position of shaft in London Wall.

William Tite and Mr. Roach Smith, and indications seen in excavating for the adjoining offices of the London Wall Estate Company in 1902.

The trench for the telephone mains had disclosed the fact that the wall only followed the precise line of the roadway until nearing Throgmorton Avenue, when it deflected towards the north side of All Hallows Church, and consequently ran nearer the northern footway. (See plan, fig. 1.) From this point the work of the contractors made rapid progress. No longer hampered by the obstruction of the wall, their trench was carried with ease through the soft material just

within it. Any excavation undertaken on our behalf had therefore to be finished

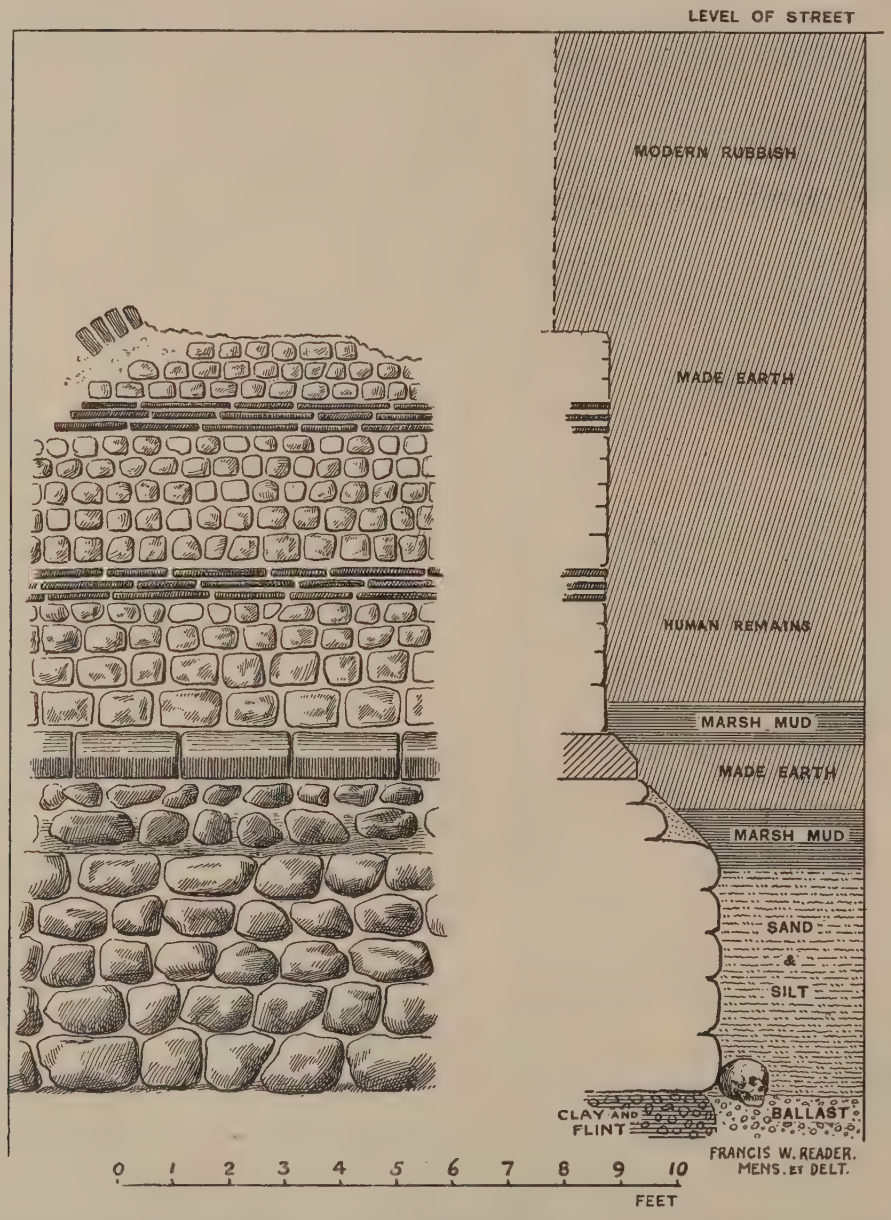


Fig. 2. Elevation of wall and section of shaft in the Walbrook Bed, London Wall (Street), dug by the Society of Antiquaries, 1905.

with all possible speed, as the authorities only allowed a certain length of the

roadway to be opened at once, that which was finished being filled in as soon as a fresh portion was begun.

An opening, the dimensions of which were 8 feet 6 inches by 7 feet, was made in the road adjoining the footpath, it being thought probable that there would be room enough in the roadway to sink down the outer face of the wall without disturbing much of the pavement. We found, however, on reaching a depth of 5 feet 3 inches, that about 4 feet of the thickness of the wall extended under the pavement; it was therefore necessary to carry the excavation considerably further to the north, and as near to the building line of the London Wall Estate Offices as was considered advisable.

The perfect condition of the masonry led to the hope that this point had not been previously disturbed by the various operations that have from time to time been carried out for sewerage and other purposes in the neighbourhood. In fact, the Roman work at this level was intact except quite at the eastern end, where a portion for about 2 feet had been broken away and again repaired, part of a brick arch being built on to it; this probably having helped to form the foundation of the houses built after Bethlehem Hospital was pulled down.

At the top, the wall consisted of several layers of ragstone, beneath which, at a depth of 6 feet 8 inches, occurred a bonding course of three tiles, the tiles being of the same character as those that have been found at all parts of the wall where it has been examined. They are of red clay, fine and close in texture (here and there a yellow one occurring), and they usually measure about $17\frac{1}{2}$ inches by rather less than 12 inches, varying from $1\frac{1}{2}$ inch to 2 inches in thickness. The total depth of this course of three tiles was 8 inches.

Beneath this came five courses of carefully squared ragstones, averaging in size 6 inches by 4 inches, imbedded in mortar, and making together a depth of 2 feet 3 inches. Under these was another bonding course of three tiles as above, which was followed by a further series of ragstones of four courses, the stones being of larger size than those above, the top course measuring about 7 inches by 5 inches. The succeeding courses gradually increased in size, the lowest being large blocks about 12 inches by 9 inches. These rested on the red sandstone plinth which was found at a depth of 12 feet 7 inches below the present street level.

The plinth is a feature invariably found on the exterior face of the wall, and is formed from blocks of ferruginous sandstone, for the most part about 1 foot to 2 feet 6 inches in length, $8\frac{1}{2}$ inches high, and 1 foot in thickness. It is boldly chamfered, and usually rests on a few courses of rough ragstone, projecting

somewhat beyond it, with a final footing of clay and flint, in a trench cut in the original surface about 2 to 3 feet deep. The depth of this lowest layer of ragstone is very variable, and at one point, which will be described later, it is altogether missing, the plinth stones resting at the level of the top of the ballast, with nothing but the puddled clay and flint beneath. This is exceptional, as there is usually found from 1 foot to 3 feet of ragstone between the plinth and the clay and flint. It seems that the intention of the builders of the wall was to keep the line of the plinth more or less at one unbroken level, and when any irregularity of the surface was met with, to make up the difference with a mass of unshaped ragstone imbedded in mortar.

In a general way the plinth marks the base of the Roman wall of London, and on its discovery in the shaft at this level it was at first thought that we could not have hit upon the bed of the stream, and that the original surface would soon be reached. However, a new feature presented itself. The ragstones beneath were next disclosed, but they were found to splay rapidly outwards, making, together with the set-off of the plinth, an abutment from the face of the wall of 2 feet, the overlapping of the stones being filled in with mortar. The third course below the plinth was of large roughly shaped stones, varying from 1 to 2 feet in length, and projecting 10 inches beyond the smaller stones above. A further four courses of these large stones followed, their faces being in the same plane, and forming a solid substructure 5 feet 8 inches below the bottom of the plinth, unlike anything that has been observed elsewhere on the line of the wall.

At this depth digging became very difficult, owing to the confined space caused by the projection of the large substructure, but it was satisfactorily determined that the base had been reached, and under all were the flints and clay, 19 feet below the present ground surface. The lowest depth of the stream at this point is about 22 feet, so that the position of the shaft would appear to be somewhat to the west of the middle. A more easterly position would have been selected, but it was not found to be practicable, owing to the proximity of the building line, which converges on the line of the wall in this direction.

One of the most important objects of this excavation was to ascertain the nature of the soil in the bed of the stream at various levels, and this object was completely accomplished. To arrive at definite results, it was of course necessary that the accumulation should not have been interfered with after it was deposited. In this respect we were fortunate, for after passing through the superficial layer of made earth for about 10 feet, and having to evade mains of various descriptions, the rest of the soil was found to have been wholly intact.

The upper earth contained several fragments of medieval and Roman pottery in irregular positions, the ground having been much disturbed from time to time for the laying of mains; probably also a good deal of the upper surface had been brought from other parts for the artificial raising of the level, as is recorded of this district by Stow and others.[a] At a depth of 10 feet 6 inches portions of two human skulls and several human and other bones were found. They were mixed together and in a fragmentary condition, so it seemed likely that they had been disturbed or brought from elsewhere. From this point to the bottom of the shaft the soil appeared to have been left alone since it had accumulated in Roman times, Roman pottery occurring without any addition of later relics. The total number of objects found was rather scanty, but this is what might have been expected, as the bulk of soil removed was limited in amount, owing to the projection of the base of the wall into the lower part of the shaft.

Made earth continued to a depth of 12 feet, when a band of black soil occurred about 9 inches in thickness; beneath this came 1 foot 3 inches more of made earth, followed by another band of about a foot of black soil similar to that mentioned above. The position of these two bands of black earth agrees approximately with the level of the peat deposit found a little to the north, on the site of the "London Wall Estate Offices."[b] (See Plate XXII. fig. v.) The bands, however, were composed of soil which was not of the same peaty character as that on the adjoining site, but seemed to be of the nature of earth stained by marsh conditions rather than the marsh mud itself. The explanation of this may be that the accumulation largely consists of rubbish thrown from the walls, or that the Romans in later times raised the ground here in order to have a passage round the base of the wall corresponding to the bank found in other parts of the line. In the black bands and the earth between them were oyster shells, animal bones, and fragments of Roman pottery.

Beneath the lower band of black earth came a water-laid deposit which corresponded exactly with the filling described in the adjacent portion of the stream to the north, referred to in the *Archæological Journal*, vol. lx. as sand and silt. This continued for about 3 feet 4 inches, and underlying it was 1 foot

[a] Stow's *Survey of London*, 1598, p. 13 (Thoms's edition is referred to throughout this paper) Maitland's *History of London* (1739), 506.

[b] *Archæological Journal*, lx. 181.

of fine sand covering the top of the ballast which formed the base of the stream.

The undisturbed soils above described were continued right against the face of the wall, and had clearly been carried up to it, filling the interstices between the stones, from which it is evident that the wall had been built across the stream previous to the silting up of its bed. In consequence of the fact that it obstructed the natural course of the water, the wall was doubtless responsible for this deposit, which in course of time must have accumulated against it, as conjectured from the indications previously observed on the adjoining site of the pile structures.

The only relics in this lower portion of the shaft were a few fragments of Romano-British pottery, one piece of red "Samian" ware, several oyster shells, and two human skulls resting right on the bottom, in the sand overlying the ballast. One of these had been exposed by the builders of the wall in digging their trench for the clay and flint. It was resting against the lowest course of ragstone, and, owing to the not too gentle efforts of the workmen to dislodge it, the lower portion was broken to fragments, when the cranium was found to be firmly imbedded in the mortar. The second skull rested loosely in the sand, and was got out in an almost perfect condition.

This occurrence of human skulls at the bottom of the Walbrook, coupled with the scarcity of other bones, is a fact which it is difficult to account for. Record has been kept of a considerable number, while many more appear to have been found but disregarded. Just south of the wall, Colonel Lane-Fox (afterwards General Pitt-Rivers) mentions the discovery of seventeen skulls, and only three other human bones. On the site of the London Wall Estate Office large numbers were found, of which comparatively few have been preserved. Of these, thirteen are in the Guildhall Museum, and three in the possession of Mr. Kennard. Mr. Roach Smith mentions that an immense number came to light during sewerage operations in Blomfield Street. On the removal of Old Moorfields Chapel six were known to have been found, while recently we have been informed by Mr. Lodge, who had charge of the erection of Finsbury House, that upwards of 100 were discovered on that site at the bottom of the stream filling, while other bones were almost wholly absent. No effort was made to preserve these.

Only the face of the wall was disclosed by the operations we have been describing. It was not cut into so as to show its internal structure. The line of the wall at this point was, however, found to be 5 feet south of that marked on the ordnance map.

The evidence afforded by the excavation of the shaft can best be judged by

bringing it into line with the various discoveries and conditions recorded in the neighbourhood. These are shown together in diagrammatic form on the general section (Plate XXII.), and include:

I. The site of the pile structures found in the bed of the stream 200 feet south of the wall by General Pitt-Rivers in 1866.[a] Here the peat deposit formed the lowest portion of the stream filling and rested on the ballast.

II. The foundation of the wall and the bed of the stream as disclosed by the digging of the present shaft.

IIA. The normal character of the foundation of the wall here inserted for comparison.

III. The culvert recorded by Mr. Roach Smith,[b] which was found in London Wall, opposite Finsbury Chambers, in 1841.

IV. The culvert recorded by Sir William Tite,[c] found eastward of Carpenters' Hall during sewerage operations in 1837. We have recently discovered another account of this culvert in "A Description of the Sewers of the City of London and Liberties," drawn up by Richard Kelsey, surveyor, and William Santle, inspector, 1840. As this account, which is in manuscript, contains some additional information, and does not appear to have been before published, we have included it in our Appendix. It was to the observations of Mr. Kelsey that Sir William Tite was indebted for many of his valuable facts regarding the conditions of the soil of London.

V. Section of the filling of the stream at the site of the pile structures, 100 to 150 feet north of the wall, described by Mr. F. W. Reader in vol. lx. of the *Archæological Journal.*

From what has been discovered of the filling of the stream north and south of the culverts, it is now clear that they were formed directly in the bed of the stream, and at or near its base, at the time of the construction of the wall, for the purpose of carrying the water through it. All accounts of the culverts are emphatic in describing them as moss-grown and choked with rushes, which proves that they were not subterranean sewers, but channels conveying surface water. It will be seen that the unusual substructure revealed by the digging of the shaft almost, if not quite, agrees with the level of the culvert of Sir William Tite, which would conveniently have passed through the sub-

[a] *Anthropological Review*, v. 71. [b] *Archaeologia*, xxix, 152, plate xvii. fig. 7.

[c] *A Descriptive Catalogue of the Antiquities found in the Excavations at the New Royal Exchange* (1848), xxxi.

structure without breaking the line of the plinth. Our shaft and this culvert may be taken as marking points west and east of the middle of the stream, its middle being approximately indicated by the culvert of Mr. Roach Smith.

We may assume that the ragstone sub-structure would be continued to an even greater depth in the middle of the stream so as to bring it to the base of the deeper culvert, or it may be, as suggested by Mr. Noble, an engineer of the General Post Office, that the bed of the stream had been artificially deepened, and this culvert placed at a slightly lower level in order to increase the velocity of the stream and carry off the water more quickly, thus preventing or lessening the deposit of soil that would be the probable result of the obstruction caused by the wall. Should this be so, it might account for the great length of this lower culvert, which, as Mr. Roach Smith records, extended in a southerly direction for 60 yards, while that on the higher level terminated at 14 feet south of the wall.

Iron bars had been placed at the openings of these culverts to prevent the passages from becoming choked, and they still remained in their original positions. Five were found in the deeper one, while only three were in that at the higher level.

It is probable that there were more than these two recorded culverts in the original scheme, as the width of the bed of the stream at this point is about 150 feet or more. Further light, however, may yet be thrown on the matter, as from Kelsey's description the culvert at the higher level still exists, having been included in the sewer with which its position was coincident,[a] and in all likelihood if others existed they have not been totally destroyed.

From the conditions attending the discovery of these culverts it appears that the passage of the water presented a problem of some difficulty, or that proper precautions for keeping the openings free were neglected. After a time they became blocked, and by the filling up of the bed of the stream ultimately buried. In consequence the water accumulated and spread in a broad expanse outside or along the north of the wall.

Within the City this check in the flow of the stream must have been attended with serious consequences. The inhabitants had crowded thickly on both its sides, which they had embanked and built upon, as is shown by the position of pavements that have come to light. Not only were the banks occupied, but the bed itself was intersected by a network of dwellings built on piles, and these remains are proved to have been distinctly Roman. With the volume of water

[a] Appendix I.

reduced, the refuse from this numerous population would cease to be carried away, and, together with the peat now rapidly forming in the sluggish water which infiltrated beneath the wall, would fill up the natural bed of the stream, and as in consequence it became shallower, the water would spread, forming an extensive quagmire through the City.

That this was at length the state of things has been amply shown by excavations along the line of the ancient stream. General Pitt-Rivers found the peat deposit south of the wall to be 9 feet in thickness, resting on the river base and surrounding the remains of the pile structures, with kitchen middens of oyster and mussel shells, animal bones, etc. at various heights, showing gradual accumulation at successive stages of the growth of the peat. Black boggy earth has been found extending for a considerable width in the north part of the City adjoining the wall, and narrowing as it approaches the Bank of England, whence to the Thames it appears to fall into the original channel, the whole line being the most productive part of the City in Roman remains.

The changes brought about in the portion of the stream north of the wall, and the adjoining district known to us as Moorfields, were equally important. For many hundred years it must have been either in a swampy condition or covered with water. The best known medieval account is that of Fitz-Stephen,[a] who in the time of Henry II. described it as a great marsh, or sheet of water, washing the walls of the City on the north side, which when it was frozen over was resorted to by the citizens for sports on the ice. Owing to the raising of the level, the gradual shrinkage of the springs, and probably to much of the water being drawn off by the construction of the City ditch in the reign of King John, its condition had gradually changed by the sixteenth century. Stow,[b] after enumerating various efforts to reclaim it, says: "By these degrees was this fen or moor at length made main and hard ground, which before being overgrown with flags, sedges and rushes, served to no use." It was not, however, until the mayoralty of Sir Leonard Halliday[c] in 1605 that the work of drainage was thoroughly completed, Moorfields being then laid out as a pleasure garden.

The swamp had undoubtedly existed in later Roman times, as has been proved by discoveries made in the accumulation of marsh mud. Many have hence been led to infer that it must always have been there, and in even greater proportions during a more remote period. It was perhaps natural therefore that

[a] *Descriptio nobilissimæ civitatis Londoniæ.* [b] Stow's *Survey of London*, 1598.

[c] Stow's *Chronicle*, edited by E. Howes, 1615. This was originally published as Stow's *Annales* in 1580.

they should have regarded the culverts as being evidence of the efforts of the Romans to drain this marshy ground. Thus, forming his opinion on insufficient evidence, Mr. Roach Smith says: "The vast moor and marsh lands on the north side of Londinium were unquestionably, by draining and embanking, rendered in part suitable for buildings, particularly the enclosed portion; that beyond the wall, probably, retained until the last century much of its original character." [a] And he goes on to mention the existence of the culvert (previously recorded by him in *Archaeologia*) as a proof of early marsh conditions. Even the discovery of sepulchral urns in the gravel underlying the marsh deposit failed to impress Roach Smith with their significance, and to account for their presence under the swamp he conjectures that "portions seem to have been partly drained or filled in by the Romans." [b]

We are fortunate in having now before us a mass of evidence culminating in that procured from the Antiquaries' shaft in London Wall, which clearly shows that the marsh did not exist in the earlier days of the Roman occupation. This fact was indeed pointed out by Sir William Tite so far back as 1848.[c] But the old idea that the marsh existed from the first, seems to have taken so strong a hold on the imagination of those who have undertaken the record of Roman London, that the real conditions have generally been overlooked, and the facts consistently obscured.

The surface of London in early Roman times was that represented by the top of the old Thames gravel, in which occur patches of clay and brick earth. The deposit of marsh mud was a subsequent accumulation, formed partly before the Romans left us and in part later. Originally the district of Moorfields was a hollow, cut out of the ridge of gravel by the Walbrook and its tributaries in working their way towards the Thames at Dowgate. The surface of the more elevated ground forming the sides of this hollow has been noticed on the north side of Finsbury Square, in Little Moorfields, the west side of Moorgate Street, by All Hallows on the Wall, and the ground adjoining Old Broad Street. On the west side the elevation appears to have been rather more than on the east, the original surface rising to within 4 or 5 feet of the present level in the neighbourhood of Little Moorfields, while on the Broad Street side a depth of about 12 feet of accumulated soil has to be penetrated before the undisturbed

[a] *Archæological Journal*, i. 111.

[b] *Archaeologia*, xxix. 153.

[c] *Catalogue of the Antiquities found in the Excavations at the New Royal Exchange*, xxix.

surface is reached, the present difference of level of these two points being 2 feet, as shown on the Ordnance Map. In spite of all the artificial raising of the surface in recent times the general contour of this depression is still slightly maintained, as shown on Plate XXII. Section B.

Springs of clear water issued from the gravel of the higher ground to the north, beginning about the district of Hoxton, and these formed the rivulets which fed the main stream. According to Sir William Tite, five of these rivulets in the neighbourhood of Finsbury are, or were when he wrote, still in existence as sewers. We have recently discovered what appears to be one at New Broad Street, to which we shall refer later. These rivulets, sheltered by lines of willows, wound their way among verdant gravelly knolls, on which grew numerous oaks, firs, elders, hazels, etc. Nor were such conditions confined to the district of Moorfields, but they extended into that portion of London which was subsequently enclosed within the walls.

Here on the surface of the gravel the early Romano-British settlers lived on a dry and health-giving soil, well drained by the Walbrook, the main channel of which was of considerable size, being about 250 feet wide near its outfall into the Thames.[a] On its banks many remains of houses and baths have been found, while plentifully around them grew trees of considerable size, as shown, among the rest, by recent discoveries in the neighbourhood of Cannon Street.

Every indication of the soil helps to prove that, as far as climate and natural features could affect it, the earlier Roman town was both healthy and agreeable. We may even surmise that it was in part these conditions which tempted many of the inhabitants to remain and await the fury of the hordes of Boadicea, rather than seek safety in flight, when London was abandoned by Suetonius.[b]

Above the original ground level the soil has risen extensively, and much of this accumulation is proved to have taken place while the Romans were still here. At no part of the City has the deposit been so great as in the channel of the Walbrook, the bottom of its bed being 22 feet from the present surface near the wall, and falling as low as 35 feet at the Bank of England, while the natural ground at the sides of the stream is covered to a height varying from 14 to 18 feet. The accumulation in most parts of the City is not more than 9 to 12 feet; at Bishopsgate the original Roman level is only 8 feet beneath the present surface. Much of this accumulation is black boggy earth, containing

[a] *Catalogue of the Antiquities found in the Excavations at the New Royal Exchange*, xxvii.

[b] Tacitus, *Annales*, lib. xiv. sect. xxxiii. "Si quos imbellis sexus aut fessa ætas, vel loci dulcedo attinuerat, ab hoste oppressi sunt."

the remains of marsh plants, and showing clearly that a large area of the City was in a condition of swamp for a very long period, but it is equally certain that this state of things did not come about until some time after the first settlement of the Romans. Why they did not apply themselves to the task of rectifying the unsanitary conditions which gradually prevailed, rendering much of the City uninhabitable, is a problem not easy to solve. All that we can do at present is to state the evidence.

The most striking proof of the change in the nature of the stream above described, is provided by the difference of condition seen in the remains of the pile structures. These structures existed in the stream at least as far north of the wall as Broad Street railway station, and it is probable that they extended still further, but their traces would have been destroyed on the formation of the North London and Great Eastern Railways.

South of the wall remains of timber structures have been noted throughout the whole course of the Walbrook; that these remains indicated foundations of buildings was first observed and pointed out by General Pitt-Rivers. Those examined by him are expressly noted as being nothing but the pointed ends of the piles with planks resting against them, the tops all having rotted away. The points were sunk in the gravel of the bed of the stream, above which only 2 feet of the piles remained, surrounded by and overlaid with peat-growth.

It is this which forms the great feature of distinction between the remains found north and south of the wall, for to the north the piles were perfectly preserved, being 4 feet to 6 feet in length, and in some cases having the tops mortised and tenoned into a horizontal beam above, which latter frequently remained, as did many portions of the superstructures, which had been shaped and retained the nails with which they had originally been fixed. The whole of these remains outside the wall were covered to a height of 5 to 6 feet from the bottom with river silt, above this occurred the peat, the greater part of which was formed in post-Roman times.

It seems clear therefore that the wall was carried through the mass of pile structures, interspersed among which, on both sides of it, large numbers of Roman relics have been found, most of them near the base of the deposit. When the passages for the stream became clogged, the piles to the north were doubtless soon flooded and remained under water, being ultimately buried in the silt and preserved intact. South of the wall the water supply was reduced, only those portions of the pile structures being preserved which were buried by the formation of the peat. The upper parts would naturally have decayed by the constant

exposure to the atmosphere or the alternating conditions of wet and dry periods, the water percolating under the wall after it had spread over the low ground to the north.

To sum up in a few words, the excavation of the shaft has shown satisfactorily that the wall was not constructed through the marsh, but was built when the top of the gravel formed the natural surface and when the stream ran freely in its channel carrying fine particles washed from the gravel, which were deposited against the face of the wall before the accumulation of the marsh-mud with its abundant growth of peat and sedge.

During the time the shaft was being dug another manhole was formed in connection with the Post Office trench at the opening of Blomfield Street. This passed through the filling of the stream on its eastern side. Near the bottom of the filling a large brass of Vespasian was found, and within a short distance of the same spot was another, of Trajan.

It is remarkable that all the coins recorded as coming from the Walbrook bed belong to the early group ending with Marcus Aurelius (A.D. 161-180) and the Faustinæ. Several discoveries of coins, one or two of them in large numbers, have been recorded by Mr. Roach Smith, Sir William Tite, General Pitt-Rivers, and Mr. J. E. Price, besides many minor finds; but in no instance, so far as we are aware, has a coin of the later period been recorded, though they are often mentioned as occurring plentifully on the ground on either side of the stream.

As regards the Walbrook, the period marked by the coins, namely the end of the second century, seems to indicate the time when London was inwalled, the course of the stream checked, and the swampy conditions set up. When these had developed themselves the tract represented by the morass would have become unfavourable for occupation, and consequently the later coins are conspicuous by their absence. Even had a few later coins occurred in the higher filling of the Walbrook bed, the preponderating presence of the earlier group would have been very significant, but the total absence of later coins, taken in conjunction with the causes of the filling up of the stream, appears to provide better evidence of the date of the building of the City wall than the figments of legend and loose conjectures which have been so universally indulged in to prove its construction as late as the time of Constantine (A.D. 306-337), or Valentinianus I. (364-373), when Theodosius[a] was general. We would add that

[a] Of him it is said by Ammianus Marcellinus (lib. xxviii. c. 3): "In integrum restituit civitates et castra, multiplicibus quidem damnis afflicta, sed ad quietem temporis longi fundata."

the construction has often been referred to as late in character, but Vitruvius, who lived in the time of the Emperor Augustus, describes a mode of building not dissimilar, and the younger Pliny speaks of the walls of the theatre at Nicæa collapsing, "quia sine cæmento farcti nec testaceo opere præcincti."

Our report on the shaft dug for the Society of Antiquaries in London Wall is now finished, and we have tried to put together in concise form the inferences which, as it seems to us, can fairly be derived from this and previous excavations along the line of the Walbrook.

FURTHER DISCOVERIES OF ANCIENT REMAINS IN THE CITY OF LONDON.

We will begin the second part of this paper by giving an account of further investigations in the line of the City wall, along which it happens that important discoveries have of late been made; and before its conclusion we shall take the opportunity of describing other ancient remains that have come to light within the confines of the City.

On the Post Office trench reaching the churchyard of All Hallows a red brick wall was revealed, the base of which was found at a depth of 8 feet, its top extending to within a few inches of the pavement, and the line of it being nearly that of the kerb. It appeared to have been the retaining wall of the earlier churchyard, many human remains being found in the space which it enclosed. On the plan of London used as one of the illustrations to Braun and Hogenberg's *Civitates Orbis Terrarum*, drawn no doubt by Joris Hoefnagel, a wall is shown enclosing a space in front of the earlier church, which probably represents the wall in question. With regard to the position of the present church, the wall is to the west of it, extending from about the western end of the churchyard, and terminating when it reaches the present structure. On the Agas map this wall is omitted; it is mentioned, however, in a parish book that the brick wall of the churchyard was pulled down on the construction of the present church in 1765.

While dealing with this subject it might be pointed out that in the Agas plan four windmills appear on the upper part of Moorfields; these are missing in Braun. Stow, when describing changes in 1549 on the north side of St. Paul's

Churchyard, says:[a] "The bones of the dead, crouched up in a charnel under the chapel, were conveyed from thence into Finsbury Field (by report of him who paid for the carriage) amounting to more than one thousand cart-loads, and there laid on a moorish ground; in short space after raised by soilage of the City upon them, to bear three windmills." Later in the Survey he tells us[b] that "the further grounds beyond Fensbury Court have been so over heightened with lay stalls of dung that now three windmills are thereon set." Until of late the memory of these windmills was preserved in the name of Windmill Street, but this is now re-named Tabernacle Street. It is much to be desired, in cases where modern requirements necessitate the obliteration of such old landmarks, that a tablet should be affixed recording the original name; in this way much interest might be added to London streets.

The trench was carried past the church under the pavement, and human bones were plentiful in the soil removed. At the east end of the church, partly under the modern wall and extending in an easterly direction for about 30 feet, was a solid piece of masonry constructed of ragstone. Its front was in advance of the City wall about 30 feet, extending partly under the pavement. It appeared to run northwards towards the City wall, but it was not uncovered far in this direction. This structure was not seen by us, but the particulars were furnished by Mr. Holmes, the engineer in charge of the works. He states that the stone of which it was built was similar to that of the City wall, but it had no courses of bonding tiles. At about the position of this discovery, a small structure is shown by Braun, but nothing appears on Agas. Along Wormwood Street the trench did not touch the wall, which here lies under the houses on the north side of the street.

On reaching Bishopsgate Street a manhole was formed on the north-west corner and near the site of the gate. At a depth of 5 feet was a mass of rubble masonry with its base extending 2 feet into the ballast, the top of which is here about 8 feet below the surface. It was an irregular mass about 6 feet 6 inches square, and varied in height from 4 to 5 feet. On its south side there were indications of a carefully built face, but this was rather difficult to determine, as so little of the wall remained above what appeared to be a rough rubble foundation. The material of which it was composed was ragstone, of irregular shape and variable size, deeply set in mortar. It contained several portions of

[a] Stow's *Survey of London*, 123.
[b] *Ibid.* 159.

Roman tile. The most noteworthy feature of this discovery was that underlying the whole mass was a puddling of flint and clay. This extended as a floor over the whole space excavated for the manhole, which was about 10 feet square.

Cutting into this mass of masonry and resting on it was a culvert built of ragstone. The opening of this was 2 feet 3 inches wide and 1 foot 9 inches high, the bottom being slightly hollowed, and the top was covered with single slabs of stone 2 feet 9 inches by 2 feet. It ran from under the house on the north-west corner, in the direction of the south-east corner of the crossing of the streets, but both ends had been previously destroyed. The remaining portion was utilized for conveying the telephone wires. At one part of the sides four thin tiles were inserted, giving a fairly sure indication of the medieval character of the sewer.

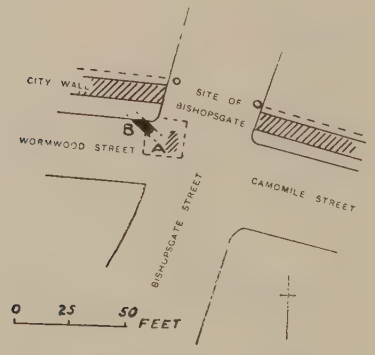


Fig. 3. Plan showing site of manhole at Bishopsgate.
A. Rubble masonry. B. Culvert.

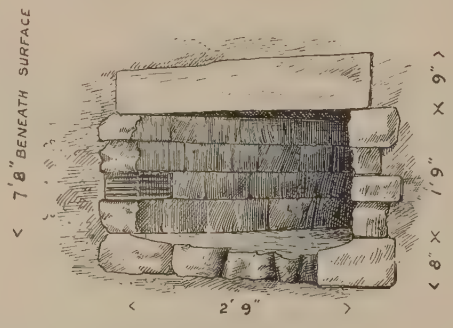


Fig. 4. Culvert, Bishopsgate.

The exact relation of the sewer to the mass of rubble concrete was not ascertained, owing to the latter being destroyed and removed before the sewer was disclosed. From the fact of the presence of the flint and clay puddling[a] beneath the concrete, there is good reason to suppose that its origin was Roman and associated with the City wall, in which connexion this feature is always found, and not otherwise. Its position on the site of Bishopsgate gives the further possibility of its being the remains of the original gate.

[a] At an excavation in Capel Court, our attention has lately been called by Mr. Davies, clerk of the works there, to a remarkable footing of puddled clay under a medieval wall composed of chalk or clunch. In this case, however, no flints were associated with it. As far as we are aware, no other instance of the kind has come to light in the City.

Mr. J. E. Price says[a] that a sewer was made in 1872 passing beneath the site of Bishopsgate, and as no obstruction was met with in the roadway it was probable that a gate was formed here in Roman times. The inspector of sewers tells us, however, that for the sewer referred to by Price the roadway was not opened, but the sewer was driven from a shaft in Wormwood Street and at the depth of 50 feet. The tunnel therefore must have passed far below the level at which any remains of the gate could possibly have been found.

Bishopsgate was the farthest point of the telephone work in an easterly direction, but excavations, begun in London Wall Street to the west of Moorgate, were carried as far as Aldermanbury. The entire line of these works was, however, laid in the soil just within the City. The wall being under the houses it was nowhere disclosed, but many broken fragments of it were found in the soil. A key (? medieval) came to light near Aldermanbury, also a fragment of Durobrivian ware with the representation of a stag, and the base of a red Samian vessel having the potter's name, AMMIUS.

THE WALL AT HOUNDSDITCH.

Whilst the works for the telephone were being completed an exceptionally fine piece of Roman wall came to light behind Nos. 58 and 60 Houndsditch. These two houses backed on to the little graveyard of St. Martin Outwich,[b] and the Salisbury public-house, which stands next to it in Camomile Street.

Forming more or less the line of division between two streets, the wall had by successive buildings become cased up on both sides, and in one part towards Houndsditch as many as three modern walls had been built against its outer face. This was a fine and interesting example of Roman masonry, and it is a matter of regret that it could not be preserved, all the more because at present, with the exception of the imperfect fragment at the Tower of London, no portion of the outer face of the wall with the plinth is open to view.

[a] *On a Bastion of London Wall*, 11.

[b] This disused graveyard is on or by the site of the church of St. Augustine Papey, suppressed in the reign of King Edward VI. Stow, in 1598, says that the plot of ground was then already "letten by the chamberlain of London to the parish of St. Martin's Oteswich to be a churchyard or burying-place for the dead." The church of that name, which stood on the south side of the juncture of Threadneedle Street with Bishopsgate Street, escaped the Great Fire, but after a rebuilding towards the end of the eighteenth century was demolished in 1874.

Unfortunately, the scheme of rebuilding demanded that in great part the remains at Houndsditch should be destroyed, and demolition was in progress on our arrival at the scene, the core having been cut into behind the churchyard, while the part of the wall further east had suffered to the extent of having all the projecting sandstone plinth dressed flush with the face of the ragstones above. The bottom of the plinth lay at a depth of 8 feet 4 inches below the street level. In the easterly portion, although the plinth had not been previously disturbed, the ragstone foundation beneath it had, at some former rebuilding, been removed to make room for the overlapping bricks which formed the footings at that time laid down. Above the plinth the wall was faced by four rows of large squared ragstones, up to the first row of bonding tiles. This

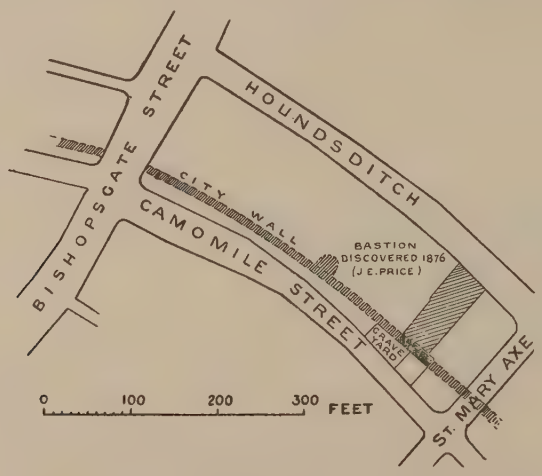
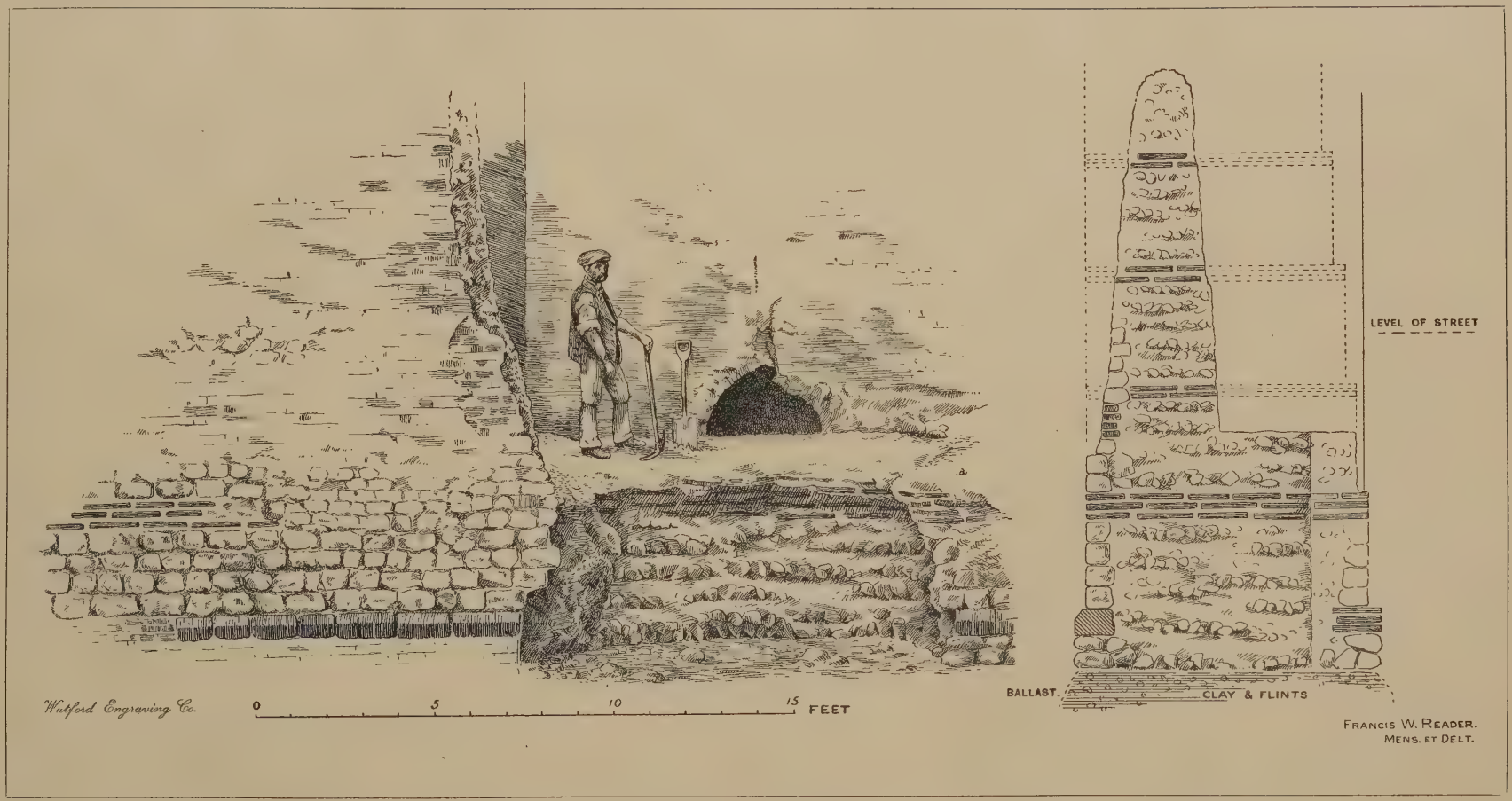


Fig. 5. Plan showing site of City wall at Nos. 58 and 60 Houndsditch.

lower portion was almost intact throughout, and extended to a height of 2 feet 2 inches above the top of the plinth, or 6 feet above the puddled clay including plinth and foundation. From this point most of the original face had weathered away and had been replaced by the random patching of later times. Here and there the tiles of the first bonding course were still to be seen on the face, and some of the stones of the upper interspace remained in position. Above this was a wall of modern brick, the original facing having fallen away, and the wall appeared to have been dressed back by the later repairers to a depth of 1 foot 9 inches at the top. In still later times brick walls were built successively against it, until at length they became flush with the original face above the level of the plinth. The core of the wall, however, contained Roman work up to a



ELEVATION AND SECTION OF THE ROMAN WALL OF LONDON AT NOS. 58 AND 60 HOUNDSDITCH.

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considerable height, as was clearly seen in the section shown by the removal of most of the structure adjoining the graveyard.

Altogether, from the top of the ballast, 16 feet 7 inches of old wall remained, and of this, 14 feet 5 inches at least was of Roman construction, having four courses of bonding tiles with intervening spaces of ragstones, while some of the rubble core above the fourth course was probably also of the same age. No such height of Roman masonry has before been recorded in the City wall. The nearest approach to it is that of a piece of wall found near Aldersgate, which, as mentioned in *The Builder* of 5th May, 1888, was 13 feet 11 inches in height.

The removal of the greater part of the western portion afforded a good opportunity of observing the manner in which the wall at Houndsditch had been constructed. Overlying the puddled clay and flint was a layer (or layers) of irregular ragstone, thickly covered with mortar and faced by larger ragstones laid irregularly but somewhat in herring-bone fashion to a height of nearly a foot. This again was covered over thickly with mortar. The core of the wall above was of similar construction, the mortar being poured lavishly on the successive layers of stones and running between them, but not without leaving many air cavities in their lower portions.

On the outer face the mortar had weathered from between many of the stones, forming vacant spaces which communicated with these air cavities inside, in which there had been veritable hecatombs of snails, vast quantities of their shells being found for a distance of from 2 to 3 feet into the body of the wall, where these creatures had apparently crawled to hybernate. Many of the shells had become half dissolved by the water that had percolated between the stones. It was also noticed that through the action of this water much of the lime had been dissolved from the mortar and redeposited more or less in the form of stalactites between the stones that had not been originally cemented, this being even a harder concretion than the Roman mortar itself.

At intervals occurred the bonds of tile, also plentifully set in mortar, the whole forming a mass of great stability. The first bonding course on the face appeared to consist of three tiles laid very evenly. As the core was cut into, the tiles, which were placed alternately lengthwise and breadthwise, were found to be laid with much less regularity, and at a particular point as many as five tiles were noticed one over the other. Above the first bond the construction was fairly uniform, the intervals of ragstone being rather less than 3 feet each in height, having between them bonds of two tiles. On the inside the wall had been cut away and encroached upon above to the extent of 3 feet 9 inches in its thickness,

this mutilation beginning about midway between the first and second bonding course. The lower part was perfect when disclosed by the recent operations, but was then cut into from the western portion on the Houndsditch side for about 6 feet, the inner face being left undisturbed.

On clearing away the building which adjoined the graveyard, a brick arch was found built against the wall on its inner face, the top of which was just above the remaining portion of the wall in this part. It was filled with fine sandy soil, and contained no relics so far as it was cleared out, but this structure being under the graveyard it was possible to examine it only for a short distance The depth of the crown of the arch below the street level was about 1 foot, and it was 3 feet 6 inches wide. It was probably the end portion of the covering of a vault.

The thickness of the wall from the face of the stones above the plinth to the face of the arch was 7 feet 9 inches, and this, together with the set-offs on the inner side near the base and that of the plinth, would bring the thickness at Roman ground level to about 8 feet 6 inches, this being more or less the regular measurement.

The main part of the excavation for the new buildings took place in the soil which here filled up the City ditch, but this unfortunately had all been removed before we had an opportunity of visiting the site. Some particulars furnished by the foreman, Mr. Baxter, may, however, be of interest. The excavation was 100 feet in length, extending from the front in Houndsditch to Camomile Street. The filling of the ditch consisted of very black mud containing many animal bones and skulls. Its greatest depth was 18 feet, which occurred about 60 feet from the wall. A quantity of piling was driven into the bottom and sloped in both directions as if to support the sides, which ran upwards in the gravel towards the wall and the roadway of Houndsditch respectively. Assuming that the slope of the side of the ditch to the north was the same as that to the south, it would give the total width as 120 feet, or 80 feet less than the width assigned by Stow,[a] and the authorities from whom he quotes, to the medieval ditch begun in 1211.

The only object we saw from here was a watering pot of the thumb-hole type with perforated base. It was 11 inches high, and of red earthenware, having brown glaze at the top. This was found resting on the bottom of the ditch.

[a] *Survey of London*, 8.

Fig. 6. Photograph of the Roman wall at Houndsditch.

THE WALL AT JEWRY STREET.

Very shortly after the discovery at Houndsditch just described, a fine fragment of the Roman wall came to light in Jewry Street at its junction with Crutched Friars. Four houses were removed on the east side of this thoroughfare, viz. Nos. 18, 19, and 20, Jewry Street, and No. 1, Crutched Friars, the ground they occupied making an irregular space, the extreme eastern boundary of which was formed by the City wall for a distance of about 65 feet, dividing the property from the buildings in Vine Street, which stand partly upon it, the wall in fact having been utilized as foundations for the buildings on either side. About 40 feet of this length remained, the portion exposed being the inner face.

By the time the discovery had come to our notice the destruction of the wall was already begun, the gravel on which it had rested, together with the bed of clay and flint, having been removed and the masonry being supported on timbers, as shown in the photograph, Fig. 7. The top of the ballast was 8 feet 6 inches from present ground level. Fortunately, however, between 9 and 10 feet in height of this masonry remained, having three courses of tiles apparent on the face, the wall being set back 3 inches at each course. The lowest of these courses was, as

Fig. 7. View of the Roman wall at Jewry Street.

elsewhere, treble, not forming a bond but penetrating the structure to a width of one tile only, and corresponding, in fact, with the ironstone plinth on the outer face. These tiles were placed on an irregular layer of ragstone and mortar, which was only a few inches in depth, so thin indeed that it was hardly apparent from the front; but under the core of the wall, where it had sagged into the puddled clay and flint, it could more clearly be traced.

Above this inner plinth of tiles were four rows of roughly squared ragstone, rising to a height of 2 feet 3 inches, where occurred the first bond, this being of three tiles. Further rows of ragstone followed, six in height, and making an

interspace of 3 feet, on which was the second bonding course, this being of two tiles. It may be remarked that one of the tiles now in our possession was exceptionally small, being only about 15½ inches in length, but thicker than usual. About 1 foot above the second bonding course was the surface level to which the wall had previously been broken down. The masonry showed the same well-preserved condition of the inner face that existed at Newgate, from which it has been inferred that on the inside an earthen bank was raised against it, thus protecting it from the action of the weather and other agencies, such as the outer face had to endure before centuries of accumulation of soil had buried it beneath the surface.

Fortunately, through the action of the Skinners' Company, ground landlords, a large portion of the fragment disclosed has been saved and built into the office now occupying the site. The name of Roman Wall House has been given to the building.

Through the space excavated for the basements of the new offices, and therefore on the inner side of the wall, there had been a ditch cut in the ballast, about 8 feet wide and 6 feet deep, filled with dark earth. (See fig. 8.) Its line was not parallel with that of the wall, but converged somewhat to the northern end, from which it was distant about 15 feet, while it was about 25 feet from the southern end. Some pottery was said to have been found there, but unfortunately, if this was so, it had all been removed without leaving a trace, and even the ditch itself had disappeared before there was an opportunity of examining it. One can hardly think that it was in any way connected with the wall, and if Roman it was probably formed before the enclosure of the City.

A few years ago, at the rebuilding of Sir John Cass's Foundation immediately to the north of the site just described, remains of the wall were met with, but we had no opportunity of observing what was discovered. The following particulars, however, have been kindly supplied by Mr. Cooksey, the architect. It seems that the building was constructed in two sections, on the site of the Cass School at the corner of Jewry Street and George Street (dating from about the middle of the nineteenth century) and of a group of older houses in Jewry Street immediately to the north of it. These houses, which, according to the Ordnance Survey, stood on the site of a Roman tower or bastion, were first destroyed, part of the new building replacing them. Then the school was razed to the ground and the new structure completed. Mr. Cooksey has no record of Roman remains coming to light from beneath the older houses. On pulling down the Cass School the foundations of the Roman wall were found, certainly at one point, to extend

partly under the present pavement in Jewry Street, and to project 7 feet into the site with which he had to deal. The wall had apparently been destroyed down to the Roman ground level, a foot or two of rough masonry resting on the puddled clay and flints. On what would have been the outside of the wall, that is to the east of it, was the filling of the medieval ditch, composed of black mud and containing among other remains a large number of bullocks' horns. Within

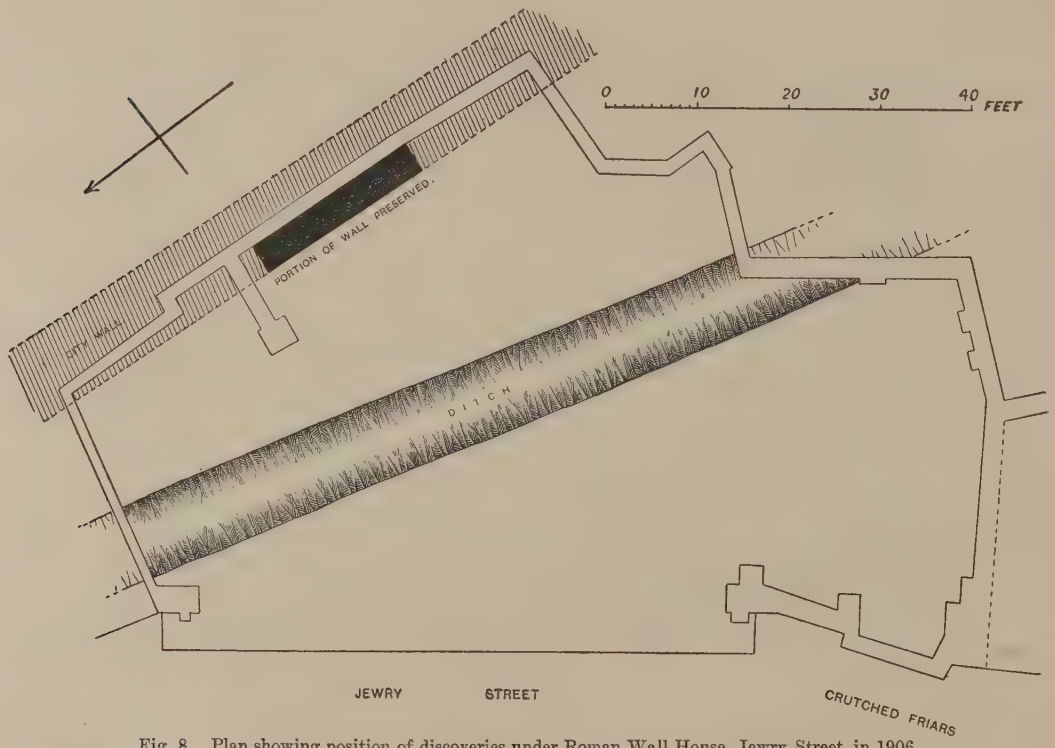


Fig. 8. Plan showing position of discoveries under Roman Wall House, Jewry Street, in 1906.

the boundary of the present building it seems to have sloped down to a depth of about 30 feet below the modern ground level, while nearly at the back and running somewhat obliquely was an oval sewer, 7 feet high, which Mr. Cooksey thinks to have been the Irongate Sewer.

Mr. Loftus Brock, when recording a former discovery in Jewry Street,[a] describes the wall as resting on massive piles, which had been driven in as a foundation on account of the badness of the soil. This was nearer to Aldgate.

[a] *Journal of the British Archaeological Association*, xxxvi. 163.

The occurrence of piles is exceptional in connexion with the enclosing wall to the north, east, and west, but has been noted in what was thought to be part of the south wall, along the river front.[a]

It will be seen by the plan (Fig. 9) that the line of the Roman wall runs from Aldgate nearly straight in the direction of the Tower, passing under the houses on the east side of Jewry Street until its junction with Crutched Friars. This latter street deflects to the south-west, and the wall, after crossing George Street, continues its southern course, west of America Square, behind the south-west corner of which in 1841[b] a piece was laid bare during excavations connected with what was then called the Blackwall Railway, another portion being found not far off by Mr. A. A. Langley during similar work near Fenchurch Street Station in 1880.[c] Further south a most interesting example of the wall, no less than 106 feet in length and raised by medieval repairs to a considerable height, now forms part of the fabric of Messrs. Barber and Company's warehouses, Cooper's Row. It has been described by Sir William Tite[d] and others; portions of the outside can be seen from the backs of houses in the Crescent. In Trinity Place, by the disused station on the District Railway, east of Trinity Square, a high piece of wall some 50 feet in length can still be seen, that which is above ground being medieval, but it is doubtless built on a Roman substructure. The outside of this is probably what

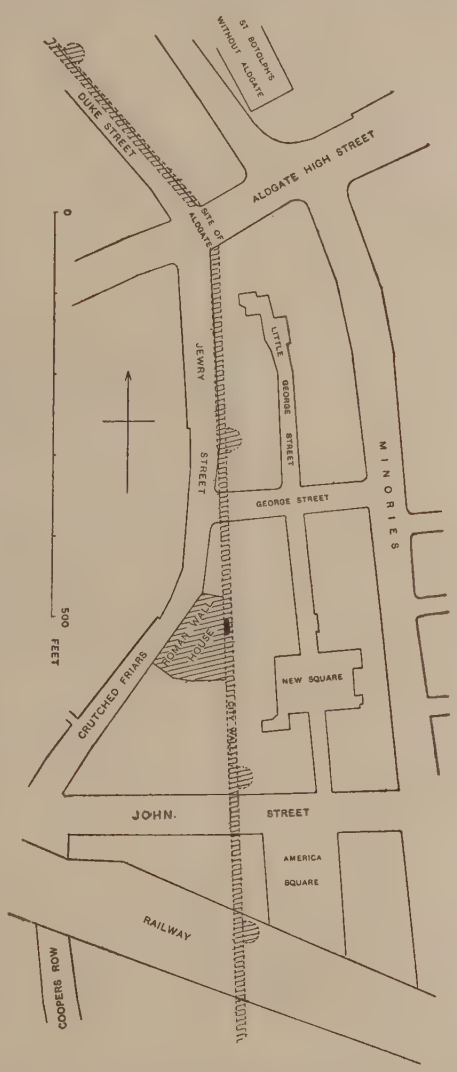


Fig. 9. Plan showing position of Roman Wall House, Jewry Street.

[a] *Illustrations of Roman London*, 18.

[b] Knight's *London*, 1841 (Chapter on Roman London by G. L. Craik), i. 163, 164.

[c] *Journal of the British Archaeological Association*, xxxvi. 463, 464.

[d] *Archaeologia*, xl. 295.

was examined by Mr. Roach Smith in 1852 and figured on Plate 1 of his *Illustrations of Roman London*, the drawing being by Fairholt. It was recently renovated and protected by the Commissioners of Woods and Forests after consultation with the Society of Antiquaries. This forms part of the very long range of wall north of Postern Row, which was drawn for Wilkinson's *Londina Illustrata*, and by John Wykeham Archer for his *Vestiges of Old London* published as late as 1851. Part of the outside and portions further south adjoining it are still visible from a bonded warehouse in George Street, making altogether a continuous length of nearly 100 feet. The fragment of Roman wall within the precinct of the Tower of London, immediately east of the Keep, which was discovered in 1879,[a] is carefully preserved. Mr. Herbert Jones, F.S.A., has supplied us with a note on excavations immediately to the south of it, which he superintended in 1904 on behalf of the Society of Antiquaries. This will be found in Appendix II.

SITE NORTH OF ALL HALLOWS CHURCH.

We will now go back to the part of the wall adjoining Moorfields but a little to the east of the spot dealt with in the first part of the paper, the discoveries here being more recent in date than those of Houndsditch and Jewry Street. Our starting point will be the church of All Hallows, London Wall, which is one of special interest, owing to its position on the City wall and to its being close to the east bank of the Walbrook stream, while the ground just to the north of it is that formerly occupied by the City Ditch, over which was built the western arm of New Broad Street. This ditch and the ground north of the thoroughfare shall first occupy our attention.

Towards the end of 1905 the houses on the south side of this street were demolished, and the clearance of the site opened up the north side of the church. For the first time an uninterrupted view was thereby obtained of the semi-circular vestry and the curious grotto-like erection built against it in the latter part of the eighteenth century, which previously could only be seen from the backs of the houses.

The space thus laid bare extended for a length of 204 feet, and occupied nearly the whole side of the street, with the exception of Nos. 52 and 53, forming the structure at the west end known as Blomfield House, which stands on the site of New Broad Street Synagogue. The breadth was about 75 feet, and it reached up to the City wall on which stands the north side of the church. The ground

[a] *Journal of the British Archaeological Association*, xxxvi. 464, and xxxvii. 280.

formed a portion of the filling of the City Ditch, which, after it had been levelled and for a time had here been garden ground, was gradually built over, and in this part known as Petty France. Stow thus describes it:[a] "Now without this churchyard wall (St. Botolph's, Bishopsgate) is a causeye, leading to a quadrant, called Petty France, of Frenchmen dwelling there, and to other dwelling houses, lately built on the bank of the said ditch by some citizens of London, that more regarded their own private gain than the common good of the city; for by means of this causeye raised on the bank and soilage of houses, with other filthiness cast into the ditch, the same is now forced to a narrow channel and almost filled up with unsavoury things, to the danger of impoisoning the whole city."

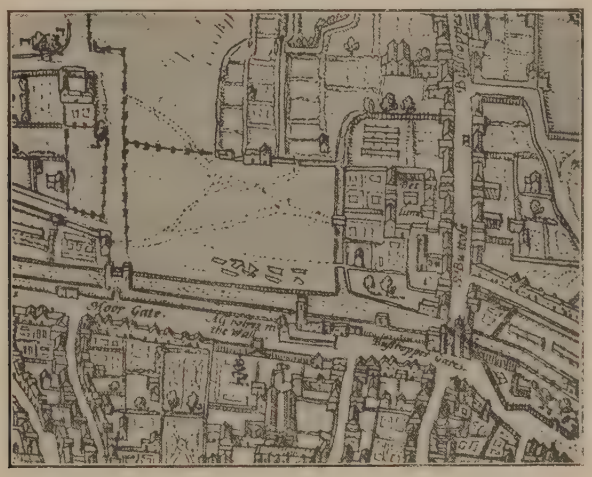


Fig. 10. Part of Moorfields, from Braun and Hogenberg's plan.

A comparison of various old maps of the part now occupied by New Broad Street is interesting, and shows the later changes this district has undergone. On Agas's map the City Ditch appears clearly, and is shown to widen here to a point where a stream flows into it from the north. This would be the remains of the Walbrook, which was apparently open without the City long after it had been taken underground within the walls. The position of this stream seems to be shown too far to the east with regard to the church of All Hallows, that is supposing that the later stream had remained in the bed of the earlier river, which has been found beneath Blomfield Street and extending to the west of it under the offices of the London Wall Estate Company.

[a] Stow's *Survey*, 62.

Braun and Hogenberg's plan (fig. 10), published in 1572 (but showing the steeple of Old St. Paul's, destroyed 1560-61), gives a similar state of things to that on Agas. Norden's *Speculum Britanniæ*, 1593, also has a possible stream similar to that which appears in Agas and Braun. Stow refers to it as a ditch thus:[a] "In the year 1569 Sir Thomas Roe, merchant-tailor, mayor, caused to be inclosed with a wall of brick about one acre of ground being part of the said hospital of Bethelem" (Old Bethlehem), "to wit on the west, on the bank of Deep Ditch so called, parting the said hospital of Bethelem from the More-field; this he did

Fig. 11. Part of Moorfields, from Faithorne's map.

for the burial and ease of such parishes in London as wanted ground convenient within their parishes."

On Faithorne's map from a survey by Newcourt (fig. 11), which although dated 1658 was prepared between 1643 and 1647, the ditch has completely disappeared. The open space immediately north of All Hallows is laid out as a garden with a tree in the middle, a few houses being shown in the north-east portion of Petty France. To the north of the garden is seen the piece of ground enclosed by Sir Thomas Roe as mentioned above; both of these are divided by a wall from Moorfields now also laid out as a park or garden. The stream of the

[a] Stow's *Survey*, 62.

earlier maps is no longer visible in this lower portion, but in an attenuated form it is still shown north of the graveyard of old Bethlehem.

Things had changed a good deal in the course of the next twenty years, for on the map of Ogilby and Morgan, 1677 (fig. 12), the part bearing the name of Petty France will be seen to be largely occupied by dwelling-houses, one row of which is situated very nearly where the south side of the present New Broad Street now stands. Behind these houses are gardens. To the west, Bethlehem Hospital is shown on the site to which it was removed in 1675, and where it stood until 1814-15, over the filled up City Ditch, on the south side of Moorfields and abutting on the City wall. As in Faithorne's map, the lower course of the stream has

Fig. 12. Moorfields district, from Ogilby and Morgan's map.

disappeared. More to the north, however, Ogilby and Morgan show two ditches roughly parallel, running south in the direction of the old course of the Walbrook. The more easterly of these is in a line with what is now Blomfield Street, but terminates about the position of the eastern end of Sun Street. The ditch to the west is carried right up to the north side of Lower Moorfields in about the line of the present Finsbury Avenue. Their further course onward and through the City was doubtless as sewers, probably two of those mentioned by Sir William Tite.[a]

The position of these ditches over the bed of the Walbrook leads us to

[a] *Catalogue of the Antiquities found in the Excavations at the New Royal Exchange*, xxvi.

suppose that, after the stream had become finally choked up, they were formed to carry off the surface water which would naturally collect in the lower ground representing the Walbrook Valley, which in 1677 was no doubt strongly marked, and is even now not altogether obliterated. (See Section B, Plate XXII.) It is interesting to notice that the ditch to the west coincides with the line of the freedom of the City, while that to the east marks the parish boundary, the distance apart of the two being about 200 to 250 feet. On the map of Bishopsgate Ward in Strype's *Stow*, 1720, the houses in Petty France are marked much as in Ogilby. The letterpress says :[a] "Petty France, a large place and generally well built : and into this place is a passage from Bethlem Street through Round Court. The west side comes into Moorfields by Postern Gate and the east runneth up to Botolph Churchyard."

Fig. 13. Part of Moorfields and New Broad Street, from Horwood's map.

The houses which have recently been demolished were, according to Wheatley and Cunningham,[b] built in or about 1737, this being the date formerly on a corner house in Broad Street Buildings. Elsewhere we are told by the same authorities, under the heading of Petty France, that it was rebuilt in 1730 and called New Broad Street.

Thus we find in Horwood's map (fig. 13) of 1799 that the existing arrangement of buildings and roadway has been arrived at. The City wall has been broken through for the extension of Old Broad Street, which now divides the "Petty France" of earlier days; and that part of New Broad Street which runs to the west is shown with the buildings and widened roadway as they were before the recent demolition.

The existing church of All Hallows, built from the younger Dance's designs

[a] Strype's *Stow*, 1720, book ii. 108.

[b] *London Past and Present*, i. 277.

NORTH SIDE OF THE CHURCH OF ALL HALLOWS, LONDON WALL, SHOWING THE VESTRY.

WALL SHOWING PLINTH OF THE ROMAN WALL, ALL HALLOWS.

Published by the Society of Antiquaries of London, 1906.

in 1765, is shown by Horwood, but it will be noticed that its semi-circular vestry, which is familiar to many, does not appear. We have long suspected, from the shape and size of this structure and its position against the City Wall, that it must have been built upon the base of one of the bastions, such as that existing to-day at Cripplegate, and that which has given the shape to the semi-circular portion of the adjacent warehouse built on the site of the Barber Surgeons' Hall. Although many of these bastions are shown on the earlier maps, in no case is one marked on the site of All Hallows. In modern maps, however, the dividing line of the wards of Bishopsgate Within and Without has this semi-circular projection.

The parish books of the medieval church on this site begin in 1455. We know, however, from the Calendar of Wills enrolled in the Court of Husting that it existed in 1285, and undoubtedly is of much earlier origin. It escaped the Great Fire, but in the latter part of the eighteenth century, having become almost ruinous, its destruction was decided upon. The Vestry minutes contain the following: "June 13th 1765. Upon digging foundations for the intended new church, George Dance [a] surveyor found same in many places bad and not fit for building." Then follow his proposals for piling and planking to make good and proper foundations. From another entry in the Vestry minutes we learn that Mr. Wicks, the bricklayer, having applied "for leave to pull down the old brick wall of the churchyard level with the ground of the said churchyard for the length of the church, for convenience of erecting a scaffold, leave was granted." This in all probability was the wall the remains of which were uncovered in London Wall (Street) during the excavations for the telephone mains as mentioned on a previous page.

It appears that the building of the present vestry was an afterthought, and this may account for its not being shown on Horwood's map, where perhaps the original plan was copied. Further entries in the minute book show that it was not until May in 1766 that it was proposed to pull down the old vestry room, and Dance was desired to prepare plans and estimates for a new vestry. Later, Dance submitted plans and an estimate of £118. A Mr. Taylor agreed to do the work for £99. It seems therefore, from these modest figures, that the base of the bastion had been discovered during the rebuilding of the church,

[a] George Dance, who designed the new church, was one of the foundation members of the Royal Academy and son of the city surveyor of the same name who built the Mansion House. He himself designed the famous Newgate Prison so lately pulled down. In the winter exhibition of 1906-7 at Burlington House were twenty portraits by him in black and red chalk of early members of the Royal Academy.

and that it was decided to utilise this as a foundation. The minutes, however, contain no direct reference to the bastion.

Having made these preliminary remarks concerning the later changes that have taken place in this spot, we will now proceed to describe what was revealed by the excavations. These we were enabled to watch by the kind permission of the architect, Mr. Paul Hoffmann, and the clerk of the works, Mr. A. J. Wheatley, both of whom have shown the most sympathetic interest in the investigation, and throughout have aided us in every possible way.

The basements of the houses built in 1730 had been carried to a depth of 8 feet below the present pavement level, consequently all the more recent accumulation had disappeared. Beyond this nothing further had been disturbed, the houses having been built directly on the mud filling of the ditch. This filling was not entirely removed by the recent rebuilding operations, as the new basements were only taken 2 feet lower than the former ones, but trenches were dug for the wall footings, and these were carried to the level of the gravel. They therefore passed through the entire filling of the ditch, which was mud of the blackest possible description. In this were large quantities of horn cores, literally occurring in masses, tightly packed together. There were also many animal bones, pots and fragments of pottery, remains of old shoes and other relics, indicating clearly the accuracy of Stow's account of the filling up of the ditch with the rubbish and soilage of the City.

The indifference with which the City Ditch was treated during the later stages of its existence appears to have been singularly marked. Stow, whose words we have already quoted on the subject, writes elsewhere as follows:[a] "This ditch, being originally made for the defence of the City, was also long together carefully cleansed and maintained as need required: but now of late neglected and forced either to a very narrow, and the same a filthy channel, or altogether stopped up for gardens planted and houses built thereon: even to the very wall, and in many places upon both ditch and wall houses to be built; to what danger of the City, I leave to wiser consideration, and can but wish that reformation might be had." After referring to several previous cleansings, the effects of which seem to have lasted but a short time, he adds of the part with which we are now concerned: "In my remembrance also the same was cleansed, namely the Moore ditch, when Sir William Hollies was mayor, in the year 1540, and not long before from the Tower of London to Aldgate." . . . . "I am not ignorant of two-

[a] Stow's *Survey*, 8.

fifteenths granted by a common council in the year 1595, for the reformation of this ditch, and that a small portion thereof, to wit betwixt Bishopsgate and the portion called Moorgate, was cleansed and made somewhat broader: but filling again very fast, by reason of overraising the ground near adjoining, therefore never the better: and I will so leave it, for I cannot help it."

No further efforts appear to have been made to restore it to its former state. The necessity for it as a defence had ceased, and at various dates it was filled up, gardens generally being formed on the site, and the Irongate sewer appears to have been laid in its course. As shown by the maps of Faithorne and Ogilby, the gardens for the most part quickly gave place to houses, and now nothing but the direction of the streets and a few graveyards remain to mark its former existence. In recent times, although some little interest has occasionally been aroused by other discoveries, few seem to have thought the City Ditch worthy of notice. We have therefore most meagre records of what has been found at the various excavations that have taken place for many years past, when considerable quantities of the ditch filling have been removed, until the publication of Mr. G. E. Fox's paper on that portion of the Roman wall which was found near Aldersgate in 1887.[a]

It has usually been held that the City Ditch dated only from the thirteenth century, this idea being based on the statement by Stow, which is briefly referred to in our account of the wall at Houndsditch, that the ditch "was begun to be made by the Londoners in the year 1211, and was finished in the year 1213, the 15th of King John."[b] Concerning this medieval ditch, Sir William Tite has left us some interesting observations. He says:[c] "That eastward of Aldersgate, the ditch was in part an artificial trench, so far as to Little Moorgate, a postern formerly standing near the south end of the present Blomfield Street, and from thence to the Tower was an entirely excavated channel." He goes on to suggest, and here undoubtedly he was wrong, that at the time of the excavation of the ditch, "the bed of the Walbrook was raised, and the rills by which it was fed artificially intercepted in their course, so that their waters were thrown into the hollow ground, and gradually formed first a lake, and ultimately a marsh on the outside of that part of the City Wall." In the first part of our paper we have already dealt with the question of the period when the water accumulated

[a] *Archaeologia*, lii. 615.

[b] Stow's *Survey*, 8.

[c] *Catalogue of the Antiquities found in the Excavations at the New Royal Exchange*, xxx.

on Moorfields. That the marsh condition had been established long before the formation of the medieval City Ditch is certain, apart from other evidence, because we have the graphic description of it by Fitz-Stephen, who died in 1191.

It seems not improbable that the existence of the marsh made the construction of the ditch in this part both unnecessary and difficult of execution, which would account for no definite artificial trench having been found along Moorfields. If in later times, as appears by the maps, the ditch here became similar to what it was in its other portions, that state of things had in all likelihood been brought about by the gradual and artificial raising of the ground to the north rather than by definite excavations in the time of King John, a view that is supported by the increased breadth of the ditch shown on the maps of Agas and Braun in the part where it adjoins the old marsh.

Not only is this indefinite character of the ditch true as regards the portion westward of Little Moorgate as described by Tite, but it would explain the state of things revealed to us by the excavations at New Broad Street. The surface of the gravel was here found to be very uneven, though its greatest depth was generally along the frontage on the south side of the street. Near the wall it was on the average about 12 feet below the surface, falling irregularly to from 18 feet to 19 feet at the roadway.

The objects found in the filling of the ditch are mostly those which must have been thrown in with the rubbish, and represent the period of its latest accumulation and disuse, the various cleansings, to which we have referred, having apparently removed objects of an earlier date. Among the relics the pottery is the most useful as a guide to age, and there seems little doubt that the great bulk of it can be assigned to the period during which the ditch was ultimately filled up, viz. the latter half of the sixteenth and the early part of the seventeenth century. On this account the collection, although for the most part fragmentary and imperfect, becomes of value as exemplifying the range and variety of the pottery in use at that time. Perhaps the most striking feature of it is the large quantity and great variety of the slip wares. Much of this has a red body painted with white slip, the whole being covered by a yellow glaze. Several of the pieces are inscribed with mottoes, none of which are complete, but more than once occur the words "Feare God." A smaller proportion is red slip on a yellow ground. There was also much delft of the coarser variety, and stoneware was plentiful, particularly the vessels known as "Bellarmines," but there was also much of the finer and richly ornamented grey and blue as well as other brown stoneware. Among the fairly numerous

examples were tygs of dark glazed red-ware both with single and double handles, braziers, some containing resinous matter, pipkins of light buff ware with green and yellow glaze, also chafing dishes, money boxes, and candlesticks of similar ware. Very noteworthy was the number of plates; these were in slip, delft, and green and yellow glaze, and many of them bore traces of the culinary uses to which they had been put. Some of these had holes pierced in the rim at the back,

Fig. 14. Photograph showing site of City Ditch excavated.

suggesting that they had been employed for decorative purposes, though of course their object may have been strictly utilitarian. Watering pots occurred plentifully, and may be taken as helping to confirm Stow's account of the City Ditch having been converted into gardens. There were also a great many remains of pitchers, jars, bowls, mugs, drug and ointment pots, etc. but in nearly all cases the pots appear to have been broken before they were cast away with the refuse of which the City Ditch became the receptacle. Among the relics were bone skates, pin polishers, shears and other iron objects, surgical instruments, brass pins and wire, a metal squirt, fragments of Venetian glass vessels, and portions of combs of bone and ivory. Finally tobacco pipes of early forms were plentiful, and

there were a good many remnants of shoes and other leathern objects. The greater part of this collection is described in detail in Appendix IV., some of the objects being figured in the text and on Plates XXVIII. and XXIX.[a]

Later in the year the houses on the north side of the street were pulled down and excavation began in November. Here the conditions of the soil were similar to what we had observed south of the roadway, the gravel lying generally about 15 feet to 16 feet below the pavement, and running in an undulating manner towards the north. There was no indication of an artificially cut ditch, the ground being on the average fairly level until nearing the northern limit of the excavation, when it fell to a depth of about 17 feet. The whole surface, however, was covered with the same black deposit of mud as that found on the south side, and this ran to a considerable depth as far north as the ground was excavated, and apparently continued beyond.

It is clear that this ground must at first have been a portion of the marsh, and if by degrees it became sufficiently raised in later times to form a bank to the ditch it must for a long period have been liable to inundation at wet seasons. It would have been interesting and instructive could we have ascertained the periods in which this black soil north of the street had been deposited, but the evidence was imperfect, for although among the objects of various dates shown us was a considerable proportion of Roman pottery, we are unwilling to base arguments on this without having accurate knowledge of the conditions under which it was found. We are indeed inclined to think that the black soil north of New Broad Street had been laid down naturally by the marsh, and was not disturbed by the operations either of making or cleansing the City Ditch, because from the whole of the ground on the north side of the street, with the exception of a portion at the extreme west to which we will refer later, the number of relics of any sort, so far as we could learn, was inconsiderable.

In this respect the ground south of the street differed so remarkably from what was to the north that we may safely conclude the City Ditch not to have extended far beyond the north side, and that at the time it was being made the receptacle of rubbish, this part was already raised and dry ground. We should add perhaps that here and there cesspools were found penetrating the gravel, and in these there was much late pottery.

As the digging on the north side of Broad Street approached the west, the

[a] Although but indirectly connected with Roman London, we hope that this contribution towards a record of the later City Ditch will not be thought superfluous.

BM 49'6"
LIVERPOOL STREET STATION
BETHLEHEM
STREET.
References
A ANTIQUARIES SHAFT
B CULVERT ROACH-SMITH
C CULVERT SIR WM. TITE
D CITY DITCH, SOUTH SIDE NEW BROAD STREET
E ROMAN DITCH, SOUTH SIDE NEW BROAD STREET
F ROMAN STREAM OR DRAIN, SOUTH SIDE NEW BROAD STREET
G ROMAN CITY WALL WEST OF CHURCH
H ROMAN CITY WALL EAST OF CHURCH
I EXCAVATION NORTH OF NEW BROAD STREET
J DEEP DITCH
K MASONRY SOUTH SIDE OF CITY WALL
45'0" PRESENT LEVELS From Ordnance Map
12'6" ANCIENT LEVELS From Present Surface
STREET.
BROAD
NEW.
CITY WALL
+45'0'
WORMWOOD STREET.
OLD BROAD STREET.
FRANCIS. W READER DEL.

OURHOOD.

gravel was found to fall sharply to a depth of as much as 30 feet at the backs of the houses of Blomfield Street. The soil throughout was black mud, which passed through the ballast to the top of the London clay. Its appearance was that of the deposit of a sluggish, stagnant, stream. In it were clearly observable masses of rush and sedge with other leaves matted together. In places occurred layers closely crowded with the shells of fresh-water snails, and these have been proved to be of the species that inhabit slow-running water. Relics were fairly numerous in this mud, and were generally of the same character as those found in the mud of the City Ditch on the south side of the street. Fragments of glazed earthenware, delft, and Bellarmines occurred throughout, and were thrown up from the lowest portion of the filling.

There can be no reasonable doubt that we had here come upon the filled-up "Deep Ditch" mentioned by Stow (see above), which is shown on the maps of Agas and Braun, as running into the City Ditch. (Fig. 10.) Why its depth should be so much greater than that of the City Ditch it is not easy to say, but the name by which it was known to Stow is fully justified by its measurement, which is roughly 10 feet deeper than the lowest part of the City Ditch in this district. It is possible that the City Ditch might be a little deeper in the portion beneath the present roadway, but this could hardly be more than a foot or two, unless we suppose the bank to the north to have been very steep.

The relative positions of these discoveries will best be seen by reference to the general plan, Plate XXV., on which also the depth of the excavation below the surface and the present levels are marked. It will also be seen that not only was Deep Ditch about 10 feet below the base of the original Walbrook stream but that it had worked somewhat to the east of it, although not so far east with regard to the position of the church as is shown on the maps of Agas and Braun.

CITY WALL AT ALL HALLOWS CHURCH.

We will now describe the remains of the City wall found in the immediate neighbourhood of All Hallows Church. At the first stage of the digging the City wall itself was disclosed on the south side of the excavation adjoining the churchyard, and it forms the base on which is built the wall west of the church, to be seen from the street of London Wall. This extended from the extreme south-

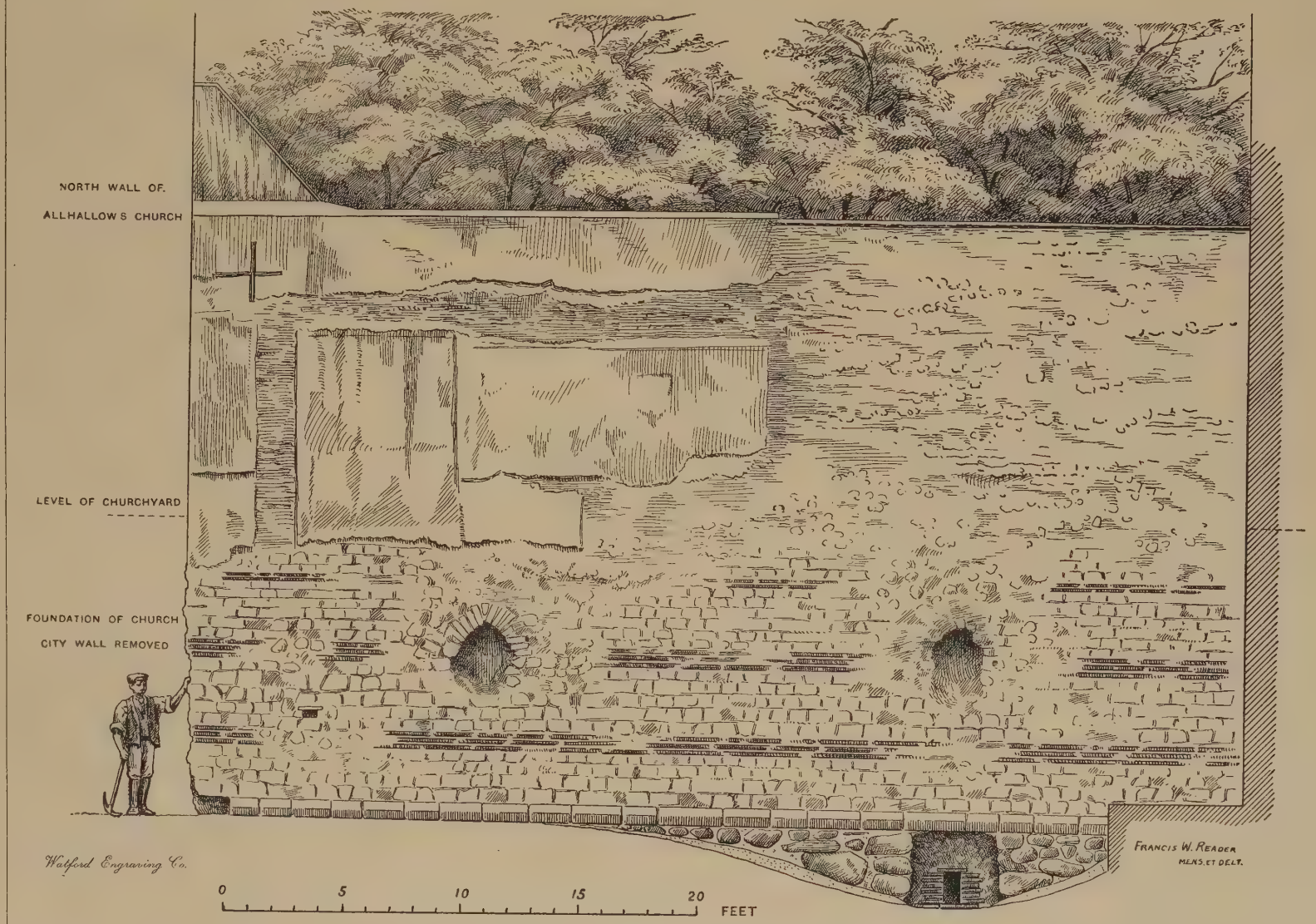
west corner of the site as far as the west part of the church, for a length of 45 feet. (See Plate XXVI.) There it had been destroyed, probably at the rebuilding, when new foundations were put in. We shall see presently that under the vestry the old wall was found by subsequent digging to have been undisturbed.

The lower part of the wall was constructed in the usual Roman manner; the red sandstone plinth was found in perfect condition resting at a depth of 13 feet at the west end. It was not level but inclined slightly upwards as it approached the church, where it was 12 feet 6 inches deep, and it rose to 11 feet 6 inches near the vestry.

The bonding tiles could be traced with broken intervals, running throughout the length, and of these there were three courses remaining, the lower two being of three tiles, the upper one of two tiles, a similar arrangement to that found in the adjacent shaft in London Wall, but differing from the usual construction in which the lowest course is of three tiles, all the succeeding ones consisting of two.

The Roman work was visible to a height of about 12 feet, that is to about the present surface level, all above this being additions of later times, against which buildings had been set, connected with the houses of New Broad Street.

The lower part of the Roman work was generally very well preserved, having been early covered up by the accumulation of the marsh, the traces of which were well shown by the deep stain of black which covered the stones to a height of 4 feet. Above this the wall had been defaced, not only by weathering, which is usual on the outer surface, but also by the construction of three flues. These had been formed in each case by cutting a channel into the face of the wall, the front being afterwards built up. The resulting flues were about 9 inches square and extended to what had then been the top of the wall. In two of these flues the lower part of the front was supported by an arch of brick, one of which remained intact, though in the other most of the bricks had disappeared. The arch that remained was 2 feet wide and 1 foot high, resting on some large sandstones, of which also the back was built, forming a fireplace. The lower part of both had fallen out, but the stones and flue showed marks of fire and were blackened with soot. The third had a small squared opening, 9 inches wide and 6 inches high, the top being formed by a tile. Judging from the bricks, which measured 9 inches by $3\frac{3}{4}$ inches by $2\frac{3}{8}$ inches, these flues were probably formed in the seventeenth century, and may have been in connexion with some industry. The mortar used in building them had been so badly prepared that it had never set, and was as soft as if just laid when disclosed in this excavation.



GENERAL VIEW OF REMAINS OF WALL FOUND TO WEST OF ALL HALLOWS CHURCH.

Published by the Society of Antiquaries of London, 1906.

Two features of interest occurred here with regard to the construction of the base of the Roman wall. In the part near the west end of the church the plinth was found resting directly on the level of the gravel then forming the natural surface, and it had nothing beneath it but the bed of clay and flints. Although the plinth has of late usually been looked upon as the finish of the wall on the outside, it has not before been recorded as resting directly on the

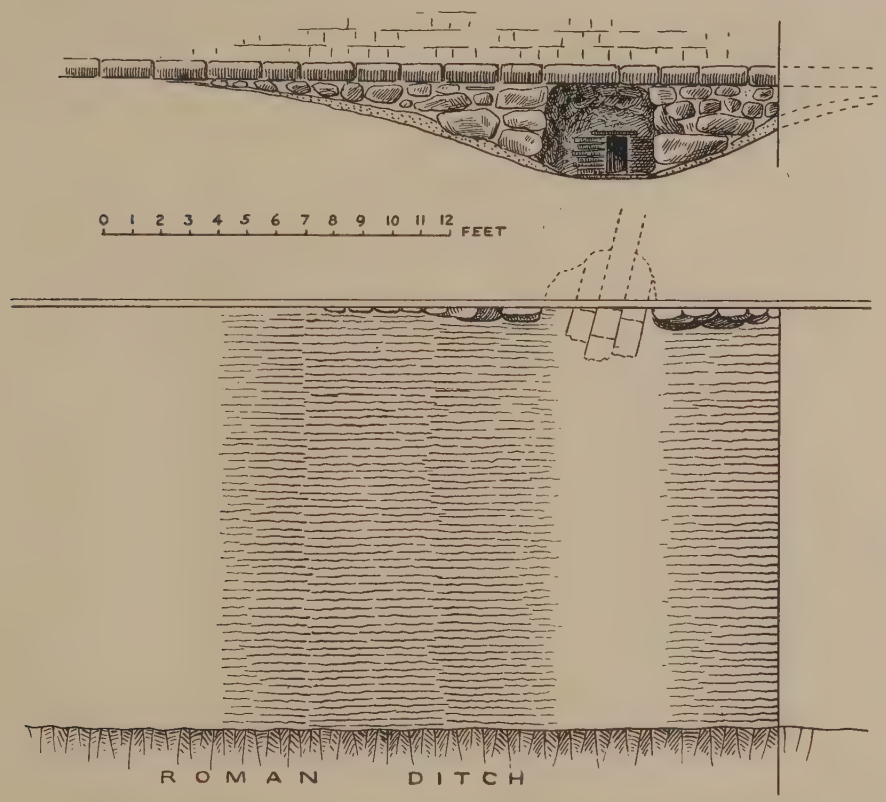


Fig. 15. Elevation and plan of drain under the Roman wall.

puddled clay and flint without an intervening layer of ragstones, the thickness of which is variable.

As the digging was carried towards the western end the gravel was found to fall into a hollow depression 2 feet 4 inches below the level of the plinth. The soil of this depression had in the lower part the appearance of the filling of a stream, being light sandy silt, and contained Roman pottery, oyster shells, a

human femur, and other animal bones. The top of the filling consisted of large quantities of mortar and many fragments of Roman roofing tile (*tegula* and *imbrex*), apparently the *débris* of buildings thrown in to level up the surface. On this being dug out it was found that beneath the plinth, which continued to run horizontally, the interspace was occupied by ragstone, except in the centre, where a break occurred 3 feet 6 inches wide filled with earth similar to that of the depression, the ragstone forming on the face spandrels on either side. From its position this space filled with earth appeared to have been an opening to allow the stream to pass under the wall. (See fig. 15.)

The excavation did not appear to have been carried to the level of the original ballast, as, although ballast was reached, it seemed to have been re-deposited, and like the soil above contained pottery and oyster shells, but as it was considered sufficiently good to build upon, the contractor had no need to carry it deeper or to remove the soil from the opening under the wall. In order therefore to ascertain the state of things more precisely we applied to the authorities to allow a special investigation, and they readily granted our request. The soil under the plinth was first attacked and found to run beneath the wall but a little distance, when the rough broken core of the wall was met with, forming an irregular bay in the solid masonry. On digging further in the lower portion of the stream deposit, which continued to a depth of 3 feet 6 inches below the plinth, many pieces of tile were found, and the remains of a human skeleton, including a portion of the orbits, the pelvis, several vertebræ, a femur, humerus, and other fragments. The femur previously discovered apparently belonged to these remains. Immediately behind and at the bottom, running through the mass of rubble concrete under the wall, was a little drain constructed of red Roman tiles of the same description as those used in the bonding courses of the wall. These were cemented with red mortar, which is noteworthy, as, except in one instance in the wall plinth at Newgate, observed by Mr. Norman,[a] only white mortar has been found in the wall itself, but red mortar was recorded as occurring in the culverts, and in the remains of the gate at Newgate.[b] The opening of this drain was rectangular, being 15 inches

[a] *Archaeologia*, lix. 129.

[b] Mr. Loftus Brock, in describing a piece of the City wall near Moorgate, says: "There was no pounded brick except in one part, where a mass of the concrete formed of pounded red brick and evidently taken from some other building, was built up into the wall." *Journal of the British Archæological Association*, xxxviii. 424-26.

high and 9 inches wide. It was followed altogether some 5 feet from the outside face of the wall, through which it ran diagonally, inclining towards the west. The bottom of the opening was formed of one tile, and was found to fall from the City northwards, there being a difference of 2 inches in the 5 feet explored. This drain had been constructed in the centre of the bed of the stream, which would presumably have run from the north, and at some point within the City would have joined the Walbrook, to which it was inclining, and to the west bank of which it must have been very near. It is curious therefore that the fall of the drain should be in the opposite direction, unless the stream had already ceased to be active before the wall was built. The drain had evidently extended beyond the wall to the north, as the tiles forming its base remained, and projected for a distance of 2 feet, although the upper portion together with the facing stones and the core of the wall were missing not only there, but for about 2 feet into the thickness at the base, coving towards the top under the plinth. As no trace was discovered of the missing stones, it would appear that they had been removed during the Roman occupation, the soil up to the level of the plinth containing plentiful Roman relics, but none of later times.

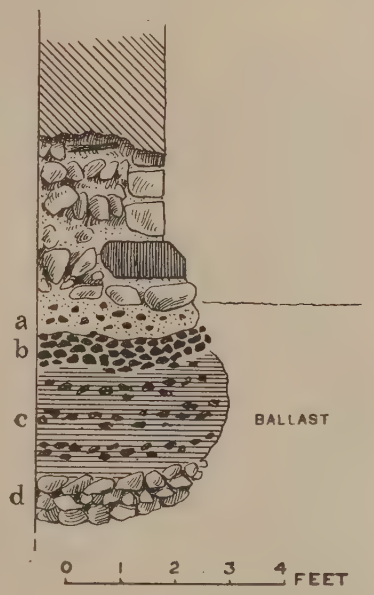


Fig. 16. Section of base of Roman wall east of All Hallows Church.

Another curious point in connection with this structure was that a thin layer of clay and flint was found just under the plinth and over the top of the substructure of ragstone, not beneath it as was the case in the bed of the Walbrook, and all other parts of the wall where the ragstone footing has been found. This might be accounted for if we supposed the tiled drain to have been formed in the bed of the little watercourse after the building of the wall. What appears to have been a very similar drain is mentioned by Mr. A. A. Langley as having occurred in the base of the wall near the Fenchurch Street Railway Station.[a]

On the east side of the excavation and eastward of the church of All Hallows the wall was again met with, it being necessary to cut into the lower part for the

[a] *The Antiquary* (Dec. 1880), iii. 64.

purpose of underpinning. This was 25 feet from the extreme south-east corner of the site, the wall being encroached on for a space 5 feet in width and about 3 feet into its thickness. Some slight variation in the method of constructing the foundation was here revealed which may be interesting to record. (See fig. 16.) Beneath the plinth were three ragstones about 4 inches deep. These were set in a bed of cement and flints 1 foot in depth, marked a in the illustration; under this lay 6 to 8 inches of tightly rammed flints (b). Next followed 2 feet to 2 feet 6 inches of clay and flints (c), finally underlaid by a layer 1 foot deep of irregular ragstones (d), in which were several pieces of red sandstone similar to that of which the plinth is formed.

THE ROMAN DITCH.

Additional interest has of late years been given to the subject of the City wall by the discovery of traces of a ditch of Roman origin. This was first noticed at Aldersgate in 1887, when it was found to be 70 feet in width, cut in the gravel and its sides puddled with clay. In one part was a mound for the support of a trestle bridge similar to that found at Silchester[a] and elsewhere. The Roman ditch was again noticed at Newgate in 1902, although the traces were somewhat indefinite.

The chances of the Roman ditch surviving destruction when the great ditch was formed in the thirteenth century do not appear very favourable; but in the district of Moorfields, where the later ditch was perhaps not formed by excavation, there was some likelihood of its having been preserved, as was pointed out in the account of the excavations on the site of the London Wall Estate Offices.[b] Unfortunately there was then no opportunity of observing this, and whatever remained there was destroyed without record. As the site of New Broad Street is contiguous, it was thought that the recent digging would afford another chance of obtaining information on this interesting point, and we took special pains to watch for any traces that might remain. Bearing in mind the past discoveries, it was not expected to find more than a portion of a ditch of considerable size, which could hardly have failed to have been cut into in later times, whether by an excavated trench or by the scouring and deepening of this portion of the moor.

[a] *Archaeologia*, lii. 615.

[b] *Archæological Journal*, lx. 144.

It was therefore a great surprise to find that the first trench cut for the footings at the western end passed through what appeared to be a ditch beneath the side of the City Ditch near the wall.

This section was somewhat indefinite, but the contents were strikingly unlike the black mud which filled the City Ditch, being clean, light, sandy loam, in which were many Roman relics, consisting of fragments of pottery, a quantity of broken

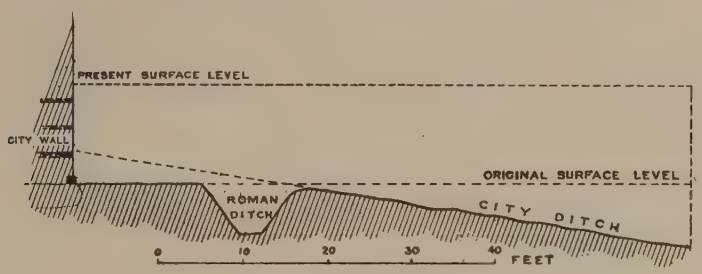


Fig. 17. Section showing position of Roman ditch.

tiles, and wall plastering. The succeeding trenches, seven in number, made it quite clear, however, that a well-cut ditch extended through the whole length of the ground, the section in each later case being much better preserved than that found in the first trench. It was 10 feet wide, 4 feet 6 inches to 5 feet deep, and 15 feet distant from the wall, running absolutely parallel with it. The filling was the same throughout, being a light sandy soil such as would naturally be formed on an open surface of gravel, and showed clearly that the marsh conditions had not come about at the time it was filled up. Samian and other Roman pottery was fairly abundant at all the points at which it was cut into, and it contained no relics of a later age.

The reason for the preservation of this ditch will best be seen by the section (fig. 17). The line of the side of the big later ditch, continued upwards from the lowest point to the face of the wall, is found to reach it about 4 feet above the Roman surface level. There is little doubt from indications everywhere in the neighbourhood that the surface had at least risen to this height by the thirteenth century. It thus came about that the small Roman ditch remained undisturbed beneath the accumulated soil.

The streamlet already described, which was found at the west end, was intersected by the Roman ditch, and as the ditch was at a lower level by a foot to 18 inches, it is obvious that if the stream were active at the time the ditch was constructed the former must have been tapped.

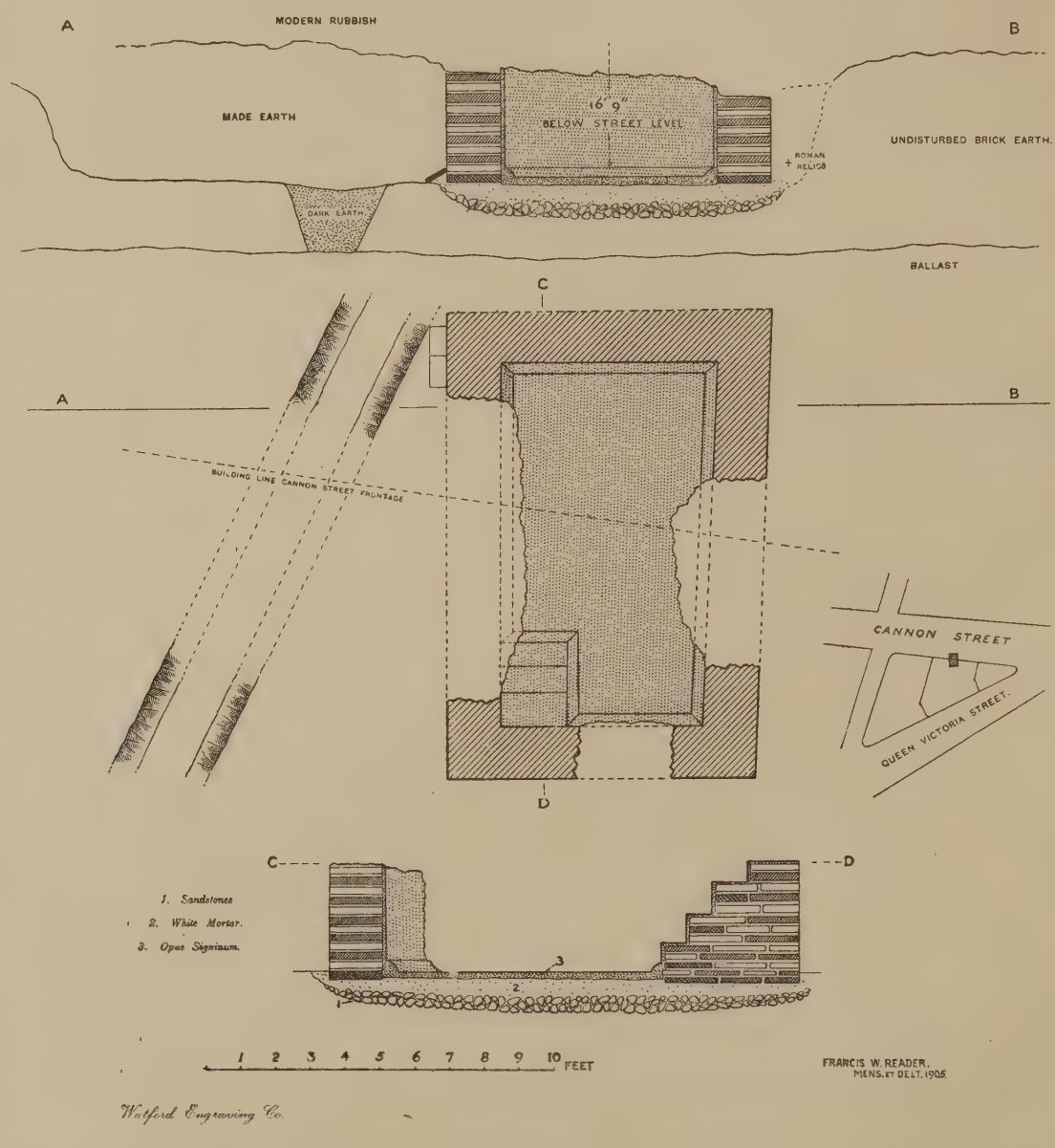
THE BASTION.

As the rebuilding on the south side of New Broad Street progressed it was decided not to dig to the base of the vestry. We therefore applied for and obtained leave specially to explore this, so as to ascertain, if possible, whether there was a Roman foundation to the structure. It proved to be a somewhat difficult task, as the eighteenth century vaults were not to be removed, and consequently we had to get beneath these, which entailed a considerable amount of shoring. There was also a chance of the ancient masonry having been removed on the rebuilding of the church, which we had found to be the case further west, as will be seen by Plate XXVI., at the spot where a man's figure appears. The examination of this point is still in progress, so it is not our intention at present to give any detailed account of the result. We would say, however, that so far it has been very successful and interesting, the original bastion having been found, the lower part of which rests at a depth of 14 feet beneath the surface, and is built of large well-dressed blocks of stone. On the face of several of these are lewis holes, showing clearly that they are the re-used remains of former buildings. They are cemented with pink mortar, which affords the first satisfactory proof of the Roman origin of the bastions. It is, however, of a later period than the City wall against which it is built, the lower part of which is here found intact, and its base has been carried for a little more than two feet below the wall plinth.

This concludes our account of matters concerning the Roman wall, and we will now turn our attention to some discoveries that have recently occurred within the area of the City.

BATH AT CANNON STREET.

Towards the end of October, 1905, during excavations in Cannon Street for the new fire station there, the remains of a Roman bath were found. The site is that of the western angle of the intersection of Cannon Street with Queen Victoria Street, which is formed into a detached triangle by the lower part of Bread Street bounding it on the west, and it is very near the spot formerly occupied by Gerards Hall.



PLAN AND SECTIONS OF ROMAN BATH DISCOVERED AT CANNON STREET IN 1905.

Published by the Society of Antiquaries of London, 1906.

The bath was some 17 feet distant from the eastern angle along the line of Cannon Street. (See Plate XXVII.) It lay partly beneath the building and also projected under the pavement, and the surface of its floor was 16 feet 9 inches below the street level. The bath was quadrilateral, measuring inside in length 10 feet 6 inches. The width at the northern end was 6 feet 3 inches, narrowing to 5 feet 10 inches at the southern end, and it was enclosed in walls a little over 17 inches thick, built of yellow tiles laid lengthwise and breadthwise. Both the longer sides had been cut into by the pier holes of the building erected at the time that Cannon Street was widened and extended, and the bath owed its partial preservation to the fact that it lay between the piers, and there was therefore no motive for destroying it; otherwise it would infallibly have shared the fate of other remains which have been found plentifully from time to time in this district and destroyed with little or no record.

The portions of the walls which remained were from $2\frac{1}{2}$ feet to $3\frac{1}{2}$ feet in height, and in the south-west angle were three steps built out from the wall. They were composed generally of yellow tiles, similar to those used in the walls, but it should be noted that a few red tiles occurred in them, and at each part of the base of the walls where it was exposed to view we also saw a red tile. It would appear that the yellow tiles were preferred for external effect, the red only being employed where they were not visible. Two red half tiles were also found at the foot of the wall on the outside, at the north-west corner, in a leaning position, so as to suggest that originally they had been continued round the base as a protection from the water falling from the roof. The foundation was formed by making a trench about 1 foot deep, in which were first laid some irregularly-shaped pieces of ragstone at a depth of about 7 inches, these being overlaid with coarse white mortar about 5 inches in thickness, and on this the walls were built. The floor was then formed of a layer of *opus signinum* 3 inches thick, which was of a finer character and deeper red on the surface than beneath. It also covered the walls and steps to a thickness of about an inch. Filling the angle formed by the wall and the floor was a roll or fillet of *opus signinum* about 4 inches thick.

There was nothing remaining to show how the tank was supplied or emptied, but evidence on this point may have been destroyed when the sides were previously cut into. In similar baths, such as those discovered at Hartlip in Kent,[a] a leaden

[a] Roach Smith's *Collectanea Antiqua*, ii. 1-24; Wright's *Celt, Roman, and Saxon*, 3rd edition, 199-203.

vent was found, opening from the centre of one side in the plaster moulding, which in like manner ran round the angle.

On the west side of the building was a ditch about 3 feet wide running in a north-easterly direction. This was clearly seen in section by the dark soil with which it was filled. The central portion had been dug away, but the end remained, that to the south being about 7 feet from the end of the bath, but it passed in its diagonal course close to the north-west angle. (See plan, Plate XXVII.) It seems probable that this ditch had some connexion with the drainage, for the top of it was as nearly as could be on the floor level of the bath, the bottom being about 2 feet lower.

The filling of the ditch was examined by Mr. A. H. Lyell, F.S.A., and with the assistance of Mr. Clement Reid, F.R.S. and Mr. E. T. Newton, F.R.S. an interesting list of plant and animal remains was obtained which throws considerable light on the conditions prevailing in Roman London. Mr. Lyell reports as follows:

"The ditch or drain was filled with an earthy material which, on close examination, was found to be of a spongy nature, caused no doubt by the minute borings of some insect in the grub state. On dissolving up this material many hundreds of small pupa cases showed themselves. These have not been identified. Their presence may possibly be explained by the accompanying hard seeds of the fruits, which may have been in a succulent condition and completely choked up the drain. The seeds have been identified as those of elder, wheat, vine, sloe, blackberry, garlic, mustard, sedge, with fragments of carbonized oak. There were quantities of another interesting seed which, so far, has not been identified. It does not seem to belong to a British plant, but is probably of the order *Rosaceæ*.

Besides the seeds there were the small bones of mouse, eel, and other small fish bones not determinable."

No. 1. *Lower Portion of Ditch.*

Sambucus nigra, *Linn.* (Elder).
Quercus, carbonized (Oak).
Triticum Sativum, *Linn.* (Wheat).

No. 2. *Upper Portion of Ditch.*

Sisymbrium alliaria, *Scop.* { Garlic Mustard. / Sauce alone. / Jack by the Hedge.

Vitis vinifera (one seed), *Linn.* (Vine).
Prunus spinosa, *Linn.* (Blackthorn or Sloe).
Rubus fruticosus, *Linn.* (Blackberry).
Sambucus nigra, *Linn.* (Elder).
Carex (Sedge).
Triticum sativum, *Linn.* (Wheat).

It was at first thought that the undetermined seeds mentioned above were those of a pine. Seed vessels of *coniferæ* have before been noticed in London, associated with Roman remains. Among the discoveries on the site of the Royal Exchange "fragments of two fir-cones" are mentioned;[a] while Mr. J. E. Price refers to the occurrence in the bed of the Walbrook[b] of the *Pinus Pinea*, or stone pine. He quotes from the paper "On the Cuisine Bourgeoise of Ancient Rome,"[c] by Mr. Coote, to show the culinary use which the Romans made of the seed vessels of this species.

At the time of its construction the bath was evidently surrounded by hillocks of brick earth. The side to the west was open to the hollow traversed by the ditch, beyond which the ground rose several feet. On the eastern side the bath had been built against the brick earth, which rose to the height of the remaining wall, when it had been encroached upon by previous excavations and again filled in with the modern rubbish of the City. See section on A, B, Plate XXVII.

The side of the brick earth had been dug into for a little distance when the wall was built, but afterwards filled up, apparently in Roman times, as the soil close to the wall contained much painted plaster, also Samian and other Roman pottery, but beyond the distance of about a foot from the wall the earth was evidently undisturbed. We had a considerable quantity of this dug out. It contained, however, nothing except the traces of roots of trees, which, together with the remains found in the ditch, help to prove that in early Roman times the surface of London was covered by a luxuriant and varied vegetation.

We understand that the County Council eventually took up the remains of this bath and that it has been preserved, but unfortunately our observations

[a] *Catalogue of the Antiquities found in the Excavations of the New Royal Exchange*, 87.

[b] *Roman Antiquities, National Safe Deposit Company's Premises*, 79.

[c] Mr. H. C. Coote's Paper is in *Archaeologia*, xli. 283-324. It contains more than a dozen references to the use of pine-nuts by the Romans. They are mentioned in the treatise called after Apicius as flavouring the sauces of boiled fish, of boiled veal, of boiled venison, of stuffed hare, of roast boar, of stuffed pig, of boiled goose, of boiled pigeon, of guinea fowl, etc.

were not completed, as it was found that through inadvertence we had not obtained a proper official permit to explore the site. Difficulties were therefore thrown in our way which prevented a further visit, and some interesting information that might have been obtained on the removal of the structure has probably been lost. We are told, however, that the bath appeared to have been an entirely detached one, the external walls showing no sign of its having been connected with other buildings, and that beneath it no arrangement for heating was disclosed.

Fig. 18. Roman Bath discovered at No. 63 Threadneedle Street in 1895.

A similar bath was found in 1895 at 63, Threadneedle Street, under the chief office of the Sun Insurance Company, of which Mr. F. H. Norman is chairman. An account of it has been given by Mr. Herbert Jones, F.S.A.[a] It differs from that at Cannon Street in being square in form, with an internal measurement of 5 feet 8 inches. The walls were of rough Kentish rag, while the steps were semicircular. In the floor, which was of *opus signinum*, was embedded what, on account of its light colour, looked like a flagstone, but proved to be a Roman tile, its size being $16\frac{3}{8}$ by 11 inches. No trace remained of the means by which the bath was supplied or emptied, and the angle was not filled with a plaster moulding. Mr. Jones describes it as being a cold water tank, "evidently

[a] *Archaeological Journal*, lii. 198. The Sun Office stands partly on the site of the church of St. Bartholomew by the Exchange, and was erected in 1842 from the designs of C. R. Cockerell, R.A. A story has, however, since been added. During the excavations of 1895 remains of the medieval church came to light, but of these we have no authentic record.

all that remained of a larger building, having escaped destruction by lying at a lower level than the other bath chambers." Mr. E. Baumer, the secretary, was

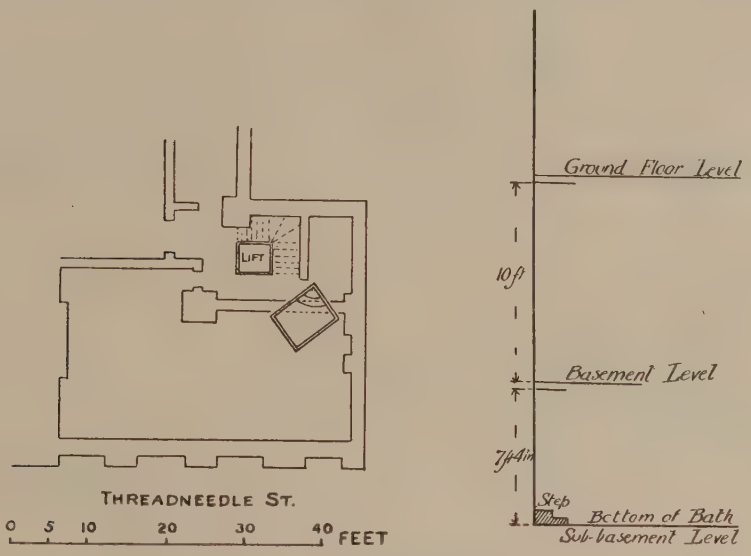


Fig. 19. Plan, with section showing depth, of a Roman Bath discovered at No. 63 Threadneedle Street in 1895.

good enough to lend us a photograph (Fig. 18) with a plan and section of this discovery (Fig. 19).

ROMAN WALLS AT KNIGHTRIDER STREET, CORNHILL, GRACECHURCH STREET, AND LEADENHALL MARKET.

An interesting discovery of a massive wall was made in August, 1905, at the western corner of the junction of Knightrider Street with Friday Street. We were told of this by Mr. Allan B. Walters, the architect of the new buildings which have been erected on the site of Nos. 81, 83, and 85, and he kindly gave us every opportunity of making an inspection.

This wall was particularly interesting on account of its construction between a framework of half poles and planks, a well-known Roman method,[a] but one

[a] J. H. Middleton, *Ancient Rome in* 1888, 29.

which does not appear to have been before recorded in London. It ran throughout the width of the ground for a length of 51 feet 6 inches, crossing diagonally from Knightrider Street to Friday Street, beneath the roadways of which it appeared to continue. It was 4 feet in thickness and 9 feet high, and had its foundations resting on the ballast at a depth of 21 feet from the present street level. It was solidly built of Kentish rag, the stone being of irregular size and shape laid at random, but forming a flat face particularly on the south side; on the north it was somewhat less regular. The spaces between the

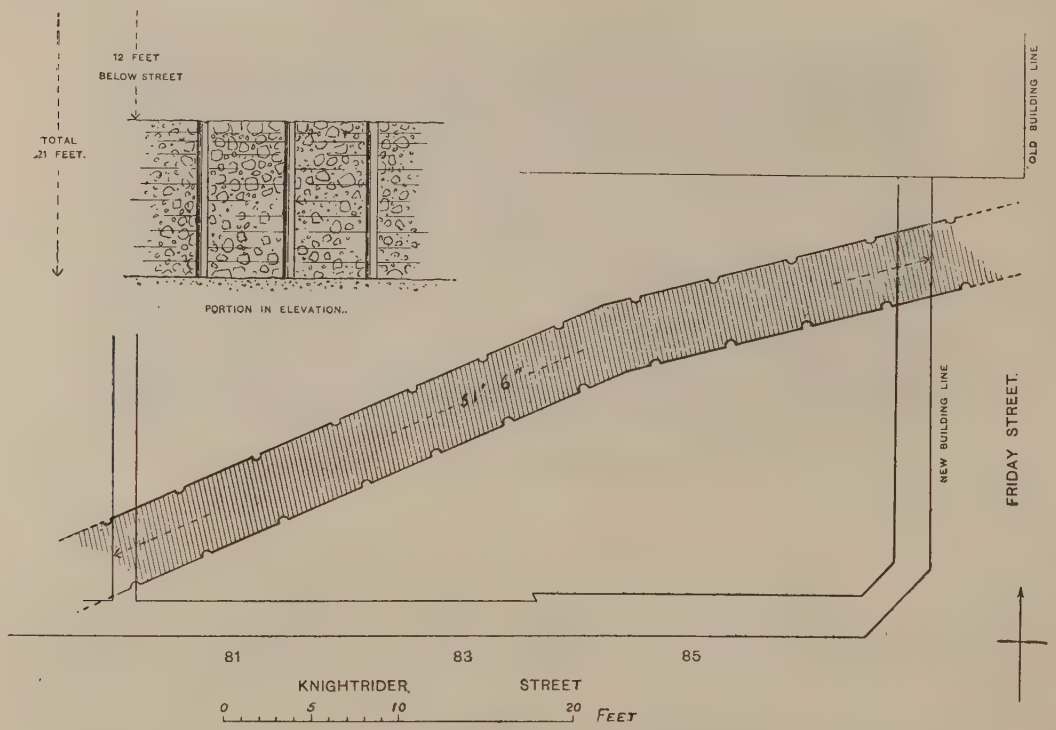


Fig. 20. Plan of Roman wall found in Knightrider Street in 1905.

stones were well filled with mortar. The stones varied in size from 8 inches to quite small fragments, being closely packed so that the joints were not very wide. At distances of 4 feet were the semicircular grooves formed by the half-poles, which were 6 inches in diameter; these ran vertically up both sides of the wall and opposite to each other. The mortar had been poured freely into the wooden framework, forming smooth and regular grooves, and bearing on the face the impress of the planks and the division between them, which showed that the

planks had measured from 9 to 10 inches in width. The original upper portion of the wall appeared to have been destroyed, but resting loosely on the top of what remained were two Roman tiles. There were, however, so far as we could see no tiles used in the construction of the wall either as bonds or built in singly.

We were told that not long ago, in constructing a sewer in Friday Street, the continuation of this wall crossing the roadway was met with. It will be seen by the plan (Fig. 20) that this wall does not run in a straight line, but at about two-thirds of its length from Knightrider Street it deflects somewhat towards the east. Apparently it formed an enclosure wall of some sort, and from the great depth at which its base rests it may be presumed to belong to an early period of the Roman occupation.

Many remarkable Roman remains have been discovered in the same district, particularly when the sewers were laid down in 1845. At this time great walls were found along the line extending from Basing Lane to Doctors' Commons. Unfortunately the accounts are singularly meagre and fragmentary. The whole district, however, is said to have been intersected by walls, buildings, and pavements. The construction of Queen Victoria Street has much altered the neighbourhood, including the names of many of the streets, so that at this time it is difficult to connect the few unsatisfactory records that have been preserved.

The particular portion of Knightrider Street where the recent discovery was made was formerly known as Old Fish Street, and in Old Fish Street Hill, a street running from it southwards a little to the west of the site under notice, was found a horseshoe-shaped sewer, about 3 feet wide and $3\frac{1}{2}$ feet high, built of Roman tiles.[a] Somewhat further to the west in Little Knightrider Street, by which name the present street was known in the portion between Old Change and Godliman Street, a similar sewer was found passing through a wall of Kentish rag.

At the western portion of Knightrider Street, formerly Great Knightrider Street, Mr. W. H. Black, in his paper on "The Primitive Site of London,"[b] mentions a wall on the northern side of the way, running in the direction of the now destroyed parish church of St. Mary Magdalene. A wall also extended from Knightrider Street nearly to the Heralds' College. This last is described as being of ragstone with bonds of tile in the manner of the City wall. It is not

[a] *Journal of the British Archæological Association*, i. 45.

[b] *Archaeologia*, xl. 49.

clear that these walls were connected, or formed any part of the boundary of the earlier city; their foundations generally went deep, and perhaps they were the

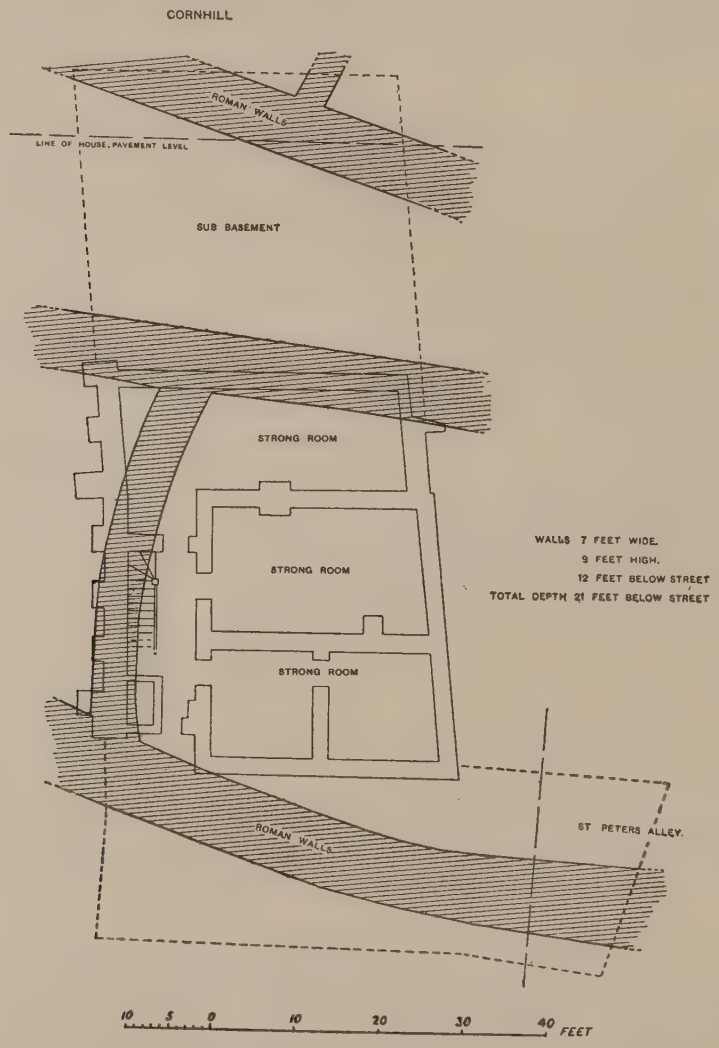


Fig. 21. Plan of Roman walls discovered under No. 50 Cornhill in 1891.

enclosure walls of important groups of buildings that stood here before the ultimate circumvallation of the City.

The walls that have been found from time to time along the line of Thames Street, west of London Bridge, in detached lengths, with return walls running up

the slope of the river bank, and built in different ways and of a variety of materials, suggest to us, so far as we can gather from the accounts, that they may perhaps have formed portions of enclosure walls such as we have referred to above rather than a continuous river defence connected with the City wall. Similar portions of large walls have been found also on the east side of the Walbrook, notably at Gracechurch Street [a] and the ground to the east of Cannon Street Railway Station.[b]

More recently, in 1891, some large walls were found in excavation for the new banking house of Messrs. Prescott, Dimsdale, and Co., at 50, Cornhill, a firm now amalgamated with the Union of London and Smiths Bank. Some reference was made to the subject at the time,[c] but we may perhaps be allowed to add a few remarks accompanying the plan here reproduced (Fig. 21), which has been kindly furnished us by Mr. Kenneth Prescott, who also allowed us to inspect the remaining portions that are built up in the basements and still open to view.

There were three principal walls found running across the space between the churches of St. Michael and St. Peter, and they appear to have continued in both directions roughly east and west. Two of these were connected with a curved cross wall, which, as Mr. Hope suggests, may have been originally straight and have lost its old facing, while the third passed under the frontage of the building, crossing diagonally the roadway of Cornhill in the direction of the Royal Exchange. In width the principal walls were generally from 7 to 8 feet, but at the extreme end running beneath St. Peter's Alley one is shown on the plan to be as much as 10 feet. They are random rubble walls of ragstone and fragments of Roman tile well grouted with mortar, and are 9 feet in height, their bases resting 21 feet 7 inches below the present street level. Mr. J. W. Grover, F.S.A., in his report to this Society, considers them to have been foundations formed in trenches, and says: "The one piece of the superstructure wall discovered was under the church on the south-west corner. It is a large block of carefully worked ashlar sandstone laid on the top of the rubble wall, the only accessible stone of a course on which a good Roman brick wall is built." We do not, however, think it probable that Roman foundations would have been of such very great depth. It must be borne in mind that the footings of the City wall generally stand almost on the original surface. Three wells were found, two of which are said to have

[a] *Catalogue of the Antiquities found in the Excavations at the New Royal Exchange*, xii.

[b] *Illustrations of Roman London*, 14; London and Middlesex Archæological Society's *Transactions*, iii. 75 (1870); *Archaeologia*, xxix. 157.

[c] *Proceedings of the Society of Antiquaries of London*, 2nd S. xiv. 6-8.

been Roman, some tessellated pavement, Samian pottery, and other relics which are still preserved in the new building.

During 1906, some old houses in Gracechurch Street adjoining St. Peter's Church were pulled down, and we watched the subsequent excavation, thinking it probable that a further portion of these last remains might be discovered. The digging was carried through 15 feet of made earth, when at the north end a thickness of 6 feet of undisturbed brick earth was found capping the gravel, and this gradually thinned out to the top of the gravel towards the south. Passing through the south end of the ground and parallel with St. Peter's Alley was a rubble wall of ragstone 8 feet thick. It was on the edge of the southern limit of the building space, the side being about 3 feet from that of the alley; it was therefore only partially destroyed, the remainder being built into the footings. The top was about 17 feet from the surface, but the base was not reached. It apparently continued in both directions, and was followed some little distance under the roadway of Gracechurch Street, across which it appeared to pass. (See Plan, fig. 22 B.)

Beneath the south wall of Saint Peter's Church two pointed arches of chalk were found, the points of the arches being 6 feet below the street level; their span was about 11 feet, the sides being carried to a depth of 11 feet 3 inches, and there was a space of 4 feet in width separating them. These are probably the remains of the earlier church. About 15 feet south of the church another wall was found running beneath the roadway; this was 4 feet thick, and built of chalk. (See Plan, fig. 22 C.)

The position of these remains will be seen by the plan to come between those at Prescott's Bank and the extensive discoveries at Leadenhall Market, where quite recently a succession of ragstone walls running under the market buildings on the north side of the Grand Avenue has been opened up by drainage operations.

The present operations have not opened up the walls sufficiently to admit of an accurate plan being obtained. A large wall, however, 7 to 8 feet in thickness, was found to run from near Gracechurch Street as far as Whittington Avenue, and apparently extended further, but beyond this point the operations ceased. At right angles to this line of wall and on both sides of it were several smaller walls of a thickness of 4 feet. For the most part all these were constructed of rubble ragstone similar to those at Prescott's Bank and St. Peter's Alley, but the larger wall at the end nearest to Gracechurch Street rose to a greater height, and in this upper portion were bonds of tiles. The top of these remains was generally

about 18 feet below the present surface, and although an additional depth of 6 feet has been uncovered, the base has not been reached.

The drains are with great difficulty being laid actually in the solid masonry, which is of such strength that it is said to have taken three weeks to pierce the thickness in one part, with a hole 3 feet in diameter. As they are encased in a

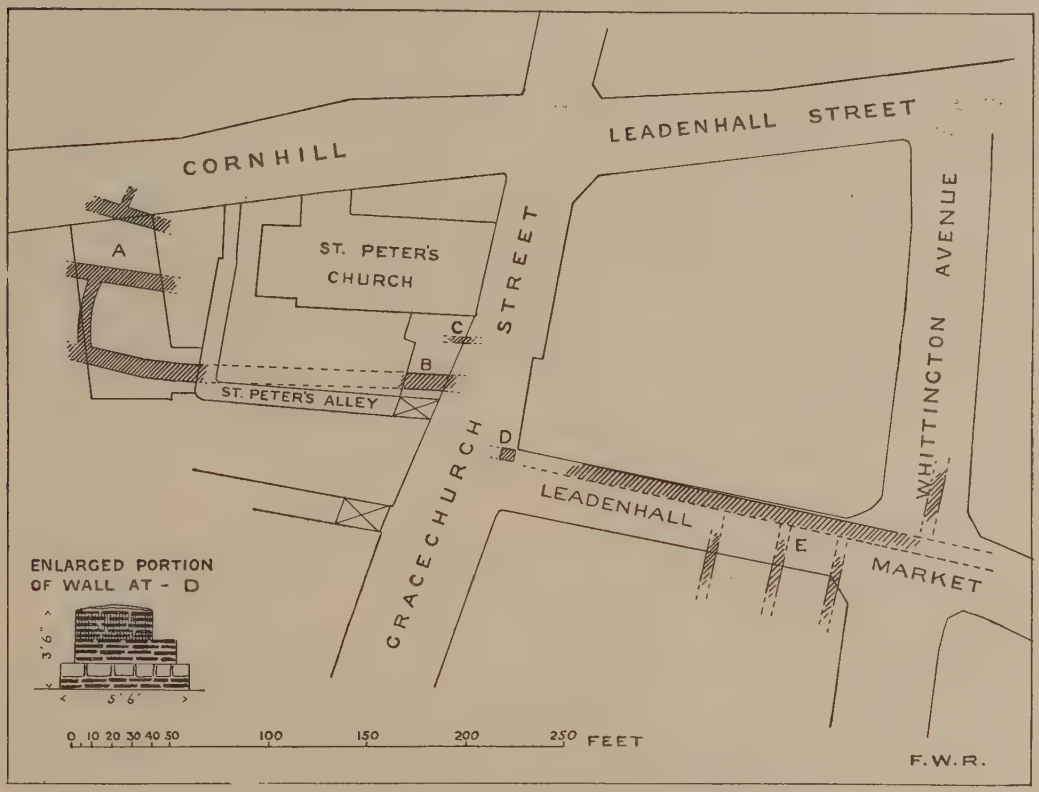


Fig. 22. Plan showing Roman walls in the neighbourhood of Gracechurch Street.

bed of modern concrete 3 feet in depth, their exploration is a matter of great difficulty. In spite of this Mr. Sydney Perks, the city surveyor, made some endeavour to trace their position, and owing to his kindness we are able to show on our plan the results so far as they could be seen.

These remains have been uncovered on previous occasions, when they were in part destroyed, and it is unfortunate that they have been most inadequately recorded.

Sir William Tite in 1848 mentions[a] that "besides other remains of buildings, walls 6, 7, and 11 feet in breadth extending east and west were found at and near Half-moon Passage in Gracechurch Street." The present Grand Avenue occupies the position of the former Half-moon Passage, so that the walls just uncovered are no doubt part of the same remains. They were again exposed, and partially destroyed, when the existing arrangement of the market was brought about. What then came to light was referred to by Mr. J. E. Price at a meeting of the London and Middlesex Archæological Society in 1882.[b] After describing some tessellated pavements he says that the walls ranged from 3 feet to as much as 12 feet in thickness. In an article also which appears to have been inspired by Mr. Price,[c] it is stated that "a vast number of Roman walls and foundations were removed for the necessities of the new City Market at Leadenhall. One large pile of this early work was considered to be of such interest that arrangements were made by the Corporation for its preservation on the site." This is still to be seen in the cellar of the shop on the corner of Gracechurch Street and the northern side of the avenue of the market. (D on plan, fig. 22.) It is built of Roman tiles, the existing top of which is about 11 feet below the street level. Its base doubtless extends many feet below the cellar floor, and the ground seems to indicate that it is directly on the line of the main wall extending through the market.

Additional importance is given to these discoveries on account of the extensive remains of buildings and tessellated pavements that have occurred in the neighbourhood,[d] and the light they help to throw on the question of the antiquity of Gracechurch Street.

Mr. Roach Smith held that Gracechurch Street was the original north and south highway of Londinium, and claimed that this thoroughfare was free from remains of Roman buildings.[e]

This view is supported later by Mr. J. E. Price,[f] who, though admitting that

[a] *Catalogue of the Antiquities found in the Excavations at the New Royal Exchange*, xii.

[b] London and Middlesex Archæological Society's *Transactions*.

[c] *The Builder* (5th October, 1889), lvii. 236.

[d] *Archaeologia*, xxxix. 491-502; *ibid.* xxix. 145-166; *Journal of the British Archæological Association*, xxxvii. 84, 90, 91; *ibid.* xxiv. 75, 78; *Proceedings of the Society of Antiquaries*, 2nd S. viii. 524, 528.

[e] *Archaeologia*, xxix. 154.

[f] *Roman Antiquities, National Safe Deposit Company's Premises*, 29.

important buildings occupied the site of St. Benet's Church, goes on to say: "More recent investigations have, however, shown that it probably does represent one of the great roads through the City, and careful examination has now proved that no structural remains of the Roman period can have occurred throughout its course. On either side of the street *débris* of buildings have been seen with fragments of tessellated pavements and other traces of early dwellings, but nothing has existed along the actual line of road." The examination, on which he bases his belief, is that of the sewerage operations in 1872, already referred to by us in connection with Bishopsgate; and we have pointed out that the tunnelling was then driven at a depth much below the Roman level.

Sir William Tite says[a] distinctly that the subterranean examination showed that Gracechurch Street "was certainly not one of the oldest roadways. At the north and south walls of St. Bennet Grace-church, at the south-west corner of Fenchurch Street, walls were discovered built across Gracechurch Street, 4 feet in thickness and 22 feet in depth from the surface, continuing down to the point to which the sewer was sunk. Somewhat to the north of Lombard Street the excavations passed under a burial ground filled with interments." As he does not call this burial ground Roman we may assume that he considered it to be later.

He then describes the discoveries "at and near Half-moon Passage" as quoted above. Thick walls are again mentioned as occurring at Corbet Court,[b] on the opposite side of Gracechurch Street and immediately to the south of St. Peter's Alley.

We are not expressly told that they crossed the street, but when recently uncovered all the indications pointed to these walls being continuous and connected with extensive and important buildings intersecting the whole district. Of those at St. Peter's, the ragstone wall is of the same character, and is in line with those at Prescott's Bank. It extended under the pavement of Gracechurch Street, but is not quite in a straight line with the main wall through the market, though it runs in that direction. (See plan, fig 22). The smaller chalk wall is most likely medieval, and also ran under the roadway, where it was followed for several feet, and appeared to continue. The portion of the tile wall (D on plan) preserved in the cellar opposite St. Peter's Alley appears to have had an opening at the end

[a] *Catalogue of the Antiquities found in the Excavations at the New Royal Exchange*, xii.

[b] Kelsey's *Description of the Sewers*, 100.

nearest the market, being built in steps as shown in the enlarged elevation. (Fig. 22.) In the other direction it passes under the pavement of Gracechurch Street as far as the cellar extends; beyond this it is built in and its further course cannot be traced, but there is no indication that it terminates at this point. The fact that there was an opening in this wall to the east of the present roadway makes it the less probable that another occurred in the roadway itself.

It will be seen therefore that the remains found at St. Benet's Church preclude the idea that this part of the street had formed a portion of the highway in early Roman times, while the indications recently observed by us go far to prove the same as regards the northern end of the street.

The existence of the burial ground mentioned by Tite, and of the chalk wall observed by us, adds further the probability that the precise line of the present roadway was not arrived at until some time in the middle ages, perhaps after Old London Bridge was built in 1209. That this bridge was preceded by one of Roman construction there seems no ground to doubt (although there is no direct evidence except the obscure statement of Dion Cassius) for the reasons that there was an important Roman settlement along the line of the present Borough High Street, and that such a work was easily within the powers of those who could span the Rhine and the Danube. In our own country we can still see the massive remains of a Roman bridge which crossed the North Tyne.[a] It is not to be supposed therefore that the Romans neglected to build one at London, where it would have been of much greater necessity, not only on account of the size and wealth of *Londinium*, but because of its position as the centre from which radiated so many important roads.

Moreover the site occupied by the Roman bridge has been satisfactorily shown to be about the same as that of "Old London Bridge," after the removal of which, as Mr. Roach Smith tells us, when dredging up the gravel and silt in the bed of the Thames, many objects of Roman art were found, with thousands of coins dating from the time of Augustus to Honorius, those of the higher empire being particularly plentiful. Among them were medallions of Marcus Aurelius and Commodus.[b]

There are also good reasons for supposing that Bishopsgate was of Roman origin, further confirmation of which has been provided by our recent discovery of the flint and clay puddling beneath its site. Not only the gate, but Bishopsgate Street, both within and without, appears to have been ancient; at least that was

[a] Bruce's *Roman Wall*, 3rd edition, 144.

[b] *Archaeologia*, xxviii. 38-46; *ibid.* xxix. 160-166; *Illustrations of Roman London*, 20, 21.

Tite's opinion, and he together with Kelsey had peculiar opportunities of observing the conditions of the soil under the road.

Taking these facts into consideration, it is perhaps natural that the highway connecting the old bridge with Bishopsgate Street should have been held to be of ancient origin, as asserted by Roach Smith and Price.[a] Tite, however, with fuller knowledge of the conditions, recognised the impossibility of an early roadway in this direction, and takes the view that there was an earlier bridge to the eastward of the medieval bridge, and about the position of St. Botolph's Wharf, Billingsgate, from which point he supposes "the oldest highway through London northward" might have been taken.

However probable this may be, it can hardly be said to be more than conjecture, the only evidence in support of it being a quantity of piling found at Botolph Wharf and a reference to it in the Cottonian MSS.[b]

Doubtless during the long occupation of *Londinium* by the Romans the river was crossed at more than one point; thus a ferry would have given way to a bridge, and that perhaps to a later bridge which was not in precisely the same position. During the period occupied by these developments important buildings would have grown up in the City, and it can easily be understood that it would be inexpedient to have removed them merely in order to have a direct road to the northern gate. Either the road, parallel with and close to the river, could have been followed until the original north road was reached, or if any alteration of roadway was necessary it would more reasonably have been made so as to avoid the existing arrangement of houses.

On all the evidence the great probability is, in our opinion, that it was not until the accumulation of ages had buried these massive walls and extensive remains of buildings that have again just been brought to light that the present line of Gracechurch Street was formed.

[a] It might be pointed out that in an earlier passage by Price than that already referred to, viz. in his account of the *Roman Antiquities discovered on the Site of the National Safe Deposit Company's Premises*, p. 19, he suggests that when the first stone bridge was finished in 1209 a new street was constructed "constituting the modern Fish Street Hill and Gracechurch Street," and that "this new line appears to be referred to in a manuscript record of the quit-rents of London Bridge under the name of the 'King's Road, called Brigge Street,' and it is also called London Bridge Street in a record cited by Madox of the 52nd year of Henry III. 1268."

[b] Faustina A. III. c. xliv. fo. 636.

EXCAVATIONS AT CLOAK LANE AND COPTHALL AVENUE.

We will now bring our present record of London observations to a close by briefly referring to some excavations that have taken place in the Walbrook bed, south of the wall. They were begun in 1905 for new buildings for the Skinners' Company. The space extended from Cloak Lane and absorbed the old garden of the Skinners' Company.

The whole surface was that of the stream bed, but unfortunately the digging was not carried deeper than 16 feet, consequently the Roman level was not reached. The part of the filling exposed showed clearly that it was the deposit of a stream. In it were quantities of piles, some large ones of oak, whose rotted tops came to light at a depth of 15 feet, were drawn out, and found to average about 5 feet in length, the ends being roughly pointed like those occurring commonly in all parts of the stream. In all likelihood these piles were of the Roman period, but for the reasons given above, and from the fact that the bed of the stream was not reached, it is not possible to speak of this with certainty.

Near the Bank of England, where the accumulation of the City has been greatest, the depth of the Walbrook as we have seen is upwards of 30 feet from the present surface. The fall from the Bank to the Thames is considerable, and probably far greater than in ancient times, owing to the surface not having been raised so much near the river side. It is therefore possible that the original stream bed would not be much more than 20 feet in depth at Cloak Lane.

There were also many smaller piles. A row of these close together, running laterally with the stream, was of birch, the bark of which was still white and well preserved; the ends were sharply pointed, and, the bed of the stream having been silted up before they were inserted, the level to which the digging had been carried about represented the position in which they had been fastened. The period they represent could not with any confidence be estimated, but green-glazed earthenware together with some Roman pottery was found in the filling around them.

The section was 36 feet wide, and represents only a small part of the breadth of the stream, which Sir William Tite found to be 248 feet in Cloak Lane.[a] The filling clearly indicated the changes that had taken place in the

[a] *Catalogue of the Antiquities found in the Excavations at the New Royal Exchange*, xxvii.

history of the stream. From the lowest part of the excavation to a height varying from 3 feet 6 inches to 5 feet, the deposit was of a clean sandy nature evidently laid down by a flowing stream. Passing upwards, this is gradually succeeded by black mud, which increased as the water was reduced in volume, and became sluggish through the raising of the bed, until it finally became a stagnant mass with filthy channels, after which it was covered with the solid made earth of more recent times.

Two walls were cut through on the west side, apparently marking different lines of embankment of the stream's side as the water shrank, and the morass was reclaimed in the medieval period. The wall farthest to the east was 2 feet wide and built of chalk. About 8 feet to the east of this was the second wall of chalk and greensand with a few bricks. This was 2 feet 8 inches wide, and its base rested a foot lower than that of the outer wall.

The eastern side of the excavation was nearer the middle of the stream, and along this ran the old Walbrook sewer, probably that which Gough records thus:[a] "In 1744 was laid in Walbrook a new sewer, a perfect cylinder of 3 feet diameter, comprised of bricks set in terrace." During a later period of the digging part of this was cut away, and the channel was found to be 7 feet high by 3 feet wide, the lower portion and the sides being of Kentish rag and roofed over with an arch of brick, the whole enclosed in rubble concrete, the base of which rested at 16 feet below the surface. Adjoining this were some piles and planks resting in the mud deposit, in which were patches of peat. One pile was drawn from just below the sewer, which measured 7 feet in length. We are much indebted to Mr. E. Bridge, the clerk of the works, for information and leave to observe what took place.

Of more importance perhaps were the excavations that have followed the removal of some old houses on the east side of Copthall Avenue, these being the last that had remained of what was formerly Little Bell Alley, a district largely rebuilt about twenty years ago, when the thoroughfare was widened and endowed with its more pretentious title.

The first of these excavations was in 1904, on the site now occupied by Jasper House. This we had no opportunity of watching closely, but the operations showed that the ground fell in the direction of Drapers' Gardens, on which it backed, and that only the side of the stream had been found, the main part evidently extending under the gardens.

[a] Camden's *Britannia*, edition of 1806, ii. 92.

Stow speaks of "an iron grate on the channel which runneth into the water-course of Walbrooke before you come to the postern called Moorgate," and adds that it was at "the farthest west part of Broad Street Ward." This would indicate that a tributary stream in his time entered the City a short distance west of the present Copthall Avenue, the line of which it followed until it joined the main stream. The excavation which we are here describing helps to show that the main stream was further east than Copthall Avenue, the bed occupying more nearly the position of Drapers' Gardens.

In December, 1906, a further excavation was made a few doors to the north of that just referred to, and, through the kindness of Mr. Foster, the clerk of the works, we had every opportunity to observe what was disclosed.

On the removal of the old houses, Nos. 10 and 12, the ground was cleared to a depth of 11 feet 9 inches. From this general level pier-holes and trenches for wall footings were dug, which were carried down until firm ground was reached. This was found to be the London clay, which here ran irregularly at a depth of from 18 feet to 24 feet. At the end, facing Copthall Avenue, it was covered with undisturbed loam of a thickness of about 3 feet, the top of which represents the old surface. Shelving gradually, at a little more than half-way across the site it gave place to washed gravel and sand, which became deeper as it approached Drapers' Gardens, where it was in places from 6 to 7 feet deep. One could easily recognize that this was a true stream deposit, and moreover it was found that the holes and trenches in this part soon filled with water to a depth of 3 or 4 feet, and had to be energetically baled during excavation. There was less water towards the middle, while in the loam near Copthall Avenue the cuttings remained comparatively dry. Over the whole came 5 to 6 feet of black mud in which were patches of peat. This extended to the top that had been cleared, 11 feet 9 inches from the street level. Many piles were found in all parts, the rotted tops of which occurred in this mud deposit, but they were dug out from the top, and nothing could be seen of their position or arrangement.

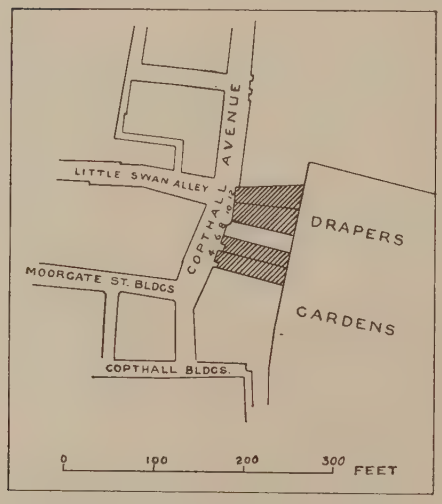


Fig. 23. Plan of excavations in Copthall Avenue.

At the north-west corner, just under the building line in Copthall Avenue, a well was discovered. The shaft of this was square and lined with planks 9 inches wide and 1½ inch thick, which were morticed at the angles and fastened with iron nails. One corner only was cut into, the top of the timber being found at 22 feet 6 inches below the street, and extending to a depth of 33 feet 9 inches. It was quite dry and filled with clean light soil. Having been dug entirely in the London clay it was probably an abortive well, or had been used to collect water from the surface, and it contained nothing which would enable one to fix its date. A second well came to light on the south side near the centre and extending under the wall of the adjoining house. It was about 20 feet deep, and had a framework of timber and bricks at the bottom, where water was reached. It was clearly medieval, and in the filling was a roundel of lead with five crosses scratched on it arranged as the arms of Jerusalem, perhaps the label of a cloth-bale (Fig. 24).

The peat found on this site was quite unmistakeable. It occurred in patches throughout the overlying deposit of black mud, in which it appeared to have been formed in marshy hollows, being from 2 to 3 feet deep in places, thinning out to a few inches. We watched continuously during several days the removal of large quantities of this deposit, and throughout occurred much Roman pottery, animal bones, horn cores, and many oyster shells. Curiously, red Samian was far more abundant than the black and other Roman wares, probably ten times as plentiful, and we saw some hundreds of fragments dug up all over the ground at this level. There was not a scrap of anything of later date, and it was evident that by the removal of the soil above this level all the later deposit had been cleared away.

Fig. 24. Lead roundel. (½.)

This is important in view of certain criticisms that have been advanced, on the one hand contending that the swamp conditions have been exaggerated, and by others that they were brought about after the departure of the Romans, when London is supposed to have long lain desolate and forsaken.

The former hypothesis can only be supported by those who have made no special study of the subject, but the latter seems at first reasonable enough, agreeing as it does with what has been related, however obscurely and imperfectly, by scraps of history and legend. Nevertheless the facts revealed by the soil fail to support this view. Wherever observations have been made in the course of the Walbrook, Roman relics have been found from the base, extending

many feet upwards into the mud and growth that had accumulated after this once vigorous stream had become sluggish and stagnant. General Pitt-Rivers was the first who pointed this out in his paper on the pile structures;[a] the site of which is only a little distance north of that now under notice. He mentions that kitchen-middens were found at various heights in the peat, showing occupation during the time the peat was being formed, and that Roman objects, exclusively, appeared in this deposit to a height of 9 feet. These observations, however, seem long to have been ignored by those who undertook to write on Roman London, and this valuable paper was almost unnoticed until brought into prominence by Dr. Munro on pages 460 to 490 of his *Lake Dwellings of Europe*.

The evidence furnished by the deposit at Copthall Avenue strikingly confirms the previous records, and the fortunate removal at first of the soil of later times prevented any chance of doubt or confusion which often occurs in such excavations when objects fall from a higher level. Here was a naturally laid deposit, at least 5 to 6 feet in thickness, one, too, which it is clear from the formation of the peat must have taken a long period to accumulate, and in which Roman objects occurred throughout, but nothing more recent. Even though one may not be able to reconcile this with some preconceived notions, and though issues may thus be raised which are difficult of explanation, we are forced to conclude that this deposit took place during the time that the Romans were occupying London, and we leave it to future discoveries to throw further light on a matter concerning which we must be content with the bare statement of facts.

We would add that the sites of our labours have been visited from time to time by various well-known archæologists, to whom we are indebted for many useful hints. We would specially thank Mr. C. R. Peers, F.S.A., for his kind assistance.

[a] *Anthropological Review*, v. (1867), lxxi.

APPENDIX I.

Note from "A Description of the Sewers of the City of London, and Liberties Hereof": as ascertained and drawn up by Richard Kelsey, surveyor, and William Santle, inspector, 1840.—(MS. Guildhall.)

P. 53.

In 1804 a very fine Roman tessellated pavement was met with in making a drain from Dr. Bell's house into this sewer [at the west end of Leadenhall Street from Lime Street westward], and was deposited in the museum of the The Honourable the East India Company.

P. 71.

An ancient culvert 2 feet 6 inches wide by 2 feet high and 18 feet from the surface, formed of fine inch oak plank, quite sound (the soil a solid peat of rushes), was met with under Thames Street. Many pins or skewers of bone from 5 to 10 inches long with holes drilled through the thicker end were found.

P. 80.

In building this sewer [St. Dunstan's Hill] some Roman pavement was cut through near to Cross Lane.

P. 83.

In building this sewer [Mincing Lane in 1824] the remains of the hypocaustum, or furnace room, of a Roman bath were met with opposite to the gateway into Clothworkers' Hall, at a depth of 18 feet, the flues under the floor, with the partitions and air-flues, being in a perfect state. A vase with charcoal was found in one of them. There was much water at this spot, level with the top of the invert. Perforated stones were placed in the side to allow it to run off. It is bedded in gravel.

P. 84. Fenchurch Street (western half), 1838.

In executing this work a burial ground in the wider part of the street, east of Rood Lane, was passed through, but not the slightest traces of "the Bourne" mentioned by Stow were found, the ground being good sound gravel.

P. 90. West end of Lower Thames Street, 1834.

In building this sewer nearly the whole line was found full of oak and chestnut piles, but much closer and larger at the end of Botolph's Wharf gateway and warehouse than in other places, and in continuation of it westward at the foot of Fish Street Hill very substantial masonry was found, and beneath it was a strong run of clear water. Howel and

Stow state that Buttolphe's Wharf was at the the head of the first London Bridge, which was built of timber about 961.

P. 95. Sewer in King William Street (between the abutment lines of the former London Bridge and the north side of Arthur Street East). 1829.

At the south end the bottom of the foundation of the sewer lies 3 feet thick deep in a bed of oyster shells, which is in the whole about 7 feet thick, and is supposed to mark the site of the ancient "Oyster Gate" (Stowe).

P. 100. Gracechurch Street, 1834.

Great obstacles were encountered at the northern end from substantial and massive masonry, extending from Corbet Court to the head. The bottom of it was not reached, but the walls blasted with gunpowder to get space sufficient for the work northward of Lombard Street. Numerous coffins with human remains were passed under.

P. 105.

A Roman vase was found [when building Arthur Street West sewer, 1833] under the foundation wall of one of the former houses on the west side of Martin's Lane, in a perfect state.

P. 106. Lawrence Pountney Lane Sewer, 1836, from Upper Thames Street to the Air Gate by the Burial Ground of Parish of St. Lawrence's Pountney.

It passed through the ruins of buildings, Roman tiles being mingled in the rubbish.

P. 112. 1834.

From Mansion House Street northward into London Wall and the land to the eastward, beyond the Auction Mart in Throgmorton Street, was found to consist of indurated bog earth to a general average depth of 9 feet, and in Lothbury about 90 feet of that sewer was tunnelled between the walls of a very ancient passage, the floor of which was paved with coarse red *tesseræ*, the whole lying in this layer of bog earth. . . . . Masses of piling with the wall planking still on the face next to the channel were cut through, and at the south-east angle of Grocers' Hall (where the manhole now is) a bed of very hard concrete pavement, covered with a thin coat of red earth, was found at a depth of 17 feet 6 inches.

P. 133. Moorgate Street, 1835.

A human skeleton was found in the bog earth at King's Arms Yard, in very good preservation but quite black.

P. 138. London Wall (east of Moorgate), 1837.

In building the new sewer, at a few feet eastward of Carpenters' Buildings, an ancient sewer of Roman workmanship was cut through. It was embedded in a mass of rubble masonry 12 feet wide. At 14 feet southward of London Wall, it terminated in a mouth cut to the slope of the ditch into which it had discharged itself. The bank of the ditch was still covered with large quantities of moss. On the northern side it had been converted into a place of sepulchre. The remains of two human skeletons, with a large dog's skull and part of the stem of a stag's horn, were found therein, together with some Roman pottery, a small silver coin of Antoninus, and a copper coin of Faustina, and other ancient money. One upright and two sloping stout iron bars at 12 feet north of the new sewer, Moorgate Street to Old Broad Street, closed the mouth of this tomb, and were in the most perfect state of preservation, still retaining their grey colour. At 11 feet 6 inches northward the crown had been broken in. A coarsely wrought base of a column was among the rubbish.

The bottom is flat and paved with two layers of large tiles, and the sides and arch of the sewer are built of small tiles with thick joints of mortar. The bed of this ancient work, and that of the new sewer being nearly coincident, they were connected on both sides.

At a short distance westward of this culvert, a stone bearing a funeral inscription of the age of the Roman Emperor Antoninus was found close to the lower part of the City wall. It was deposited in the City Library by the Commissioners.

The substructure of the City wall is rubble, banded at three feet intervals with two thicknesses of large tiles.

This spot having until of late years borne the name of "Little Moorgate," it probably was the site of a strongly fortified entrance to the City in its earliest days.

The soil cut through consisted of wet and slimy bog earth containing human and other animal remains in considerable numbers, in the line of Blomfield Street.

From Description of the Southern End of The Walbrook, p. 258 et seq.

Ruined tessellated and other pavement met with in Princes Street, Lothbury, and Bartholomew Lane.

P. 269.

Opposite to Robin Hood's Court, Bow Lane, at a depth of 12 feet, a coffin or grave constructed of Roman tiles on the sides, head, and foot, but not covered, was found [1839]. It contained the entire skeleton of an old man. A defaced piece of copper money was firmly clenched between the teeth.

P. 319. Eastern Half of Cheapside, 1838.

The foundation of an ancient structure, which had winding steps withinside, was met with at the junction of the Wards of Cheap and Cripplegate Within. On the side were found two shields of Purbeck or Petworth marble carved with the heraldic bearings of Edward the First and his Queen Eleanor. They were presented by the Commissioners to

the City Library. According to Stow's statement this must have been part of the "Standard in Cheape." Nearly opposite to Bow Church a quantity of ancient jewellery was found consisting of rings, brooches, and other ornaments. They appeared to be very pure silver, but proved to be tin. They were presented to the City Library.

P. 446. Holborn.

A Roman sepulchre, consisting of a cubical coffer of 3-inch oak 2 feet 9 inches on every side, and containing a few remains of human bones, with the rib bone of some quadruped and a considerable quantity of pottery, the greater part of which was broken, was met with in 1833 at a depth of 18 feet embedded in the blue clay. Five of the jars which were found unbroken were presented to the City Library. The situation of it was opposite to Messrs. Thompson and Fearson's gin shop, eastward of Union Court.

The following particulars are also given in the same book:

London Wall east of Moorgate.

The upper sewer was built by the Commissioners in 1779, and extends eastward to Great Winchester Street.

	Depth.	Height.	Width.
At Moorgate Street	9 4	5	3
Leathersellers' Buildings	9 9		
Drapers' Buildings	8 6		
Great Winchester Street	7 3		

The current is westward.

Lower sewer was built by Commissioners in 1837, and extends from Moorgate Street eastward into Old Broad Street.

	Depth.	Height.	Width.
At Albion Hall	21 0	6	4
Circus Place	18 8		
Blomfield Street	18 2		
Little Winchester Street	18 0		
Old Broad Street	16 4	6	3 6

From Great Moorgate to Little Moorgate the sewer lies in strong gravel, most of it black. There was no cap of loam upon it, very filthy water ran in from under the Old City wall, the bottom of which is nearly as deep as the sewer.

At Allhallows Church the gravel was coarse, perfectly clean and loose. Water very clear and abundant.[a]

[a] The above notes have in part been kindly supplied by the editor of the *Victoria County History*.

APPENDIX II.

Tower.

Report on Excavations at the Tower of London, by Herbert Jones, Esq., F.S.A.

When the Horse Armoury at the Tower of London was pulled down and the remains of the Wardrobe Tower, long concealed by modern brickwork, were exposed to view, it was found that a length of about 16 feet of the wall of the Roman city had been built into the Wardrobe Tower, and this piece is still preserved. It is of similar construction to the rest of the wall but about a foot less in thickness.

In the autumn of 1904 an excavation was made, at the expense of the Society of Antiquaries, immediately south of the end of the existing piece of wall, for the purpose of ascertaining whether any trace of its continuation in the direction of the Thames could be found, or if possibly the position of the angle of the wall, which must have been situated near the spot, might be ascertained.

The plinth of the existing wall is now above the present level of the ground, which slopes from this point steeply away to the river, the surface and levels having been subject to great alterations at various periods. Two deep trenches running south were cut at the south end of the wall, with cross trenches connecting them, and were carried down to the unmoved soil. Medieval walling was found in a line with the Wardrobe Tower; and close to the southern end of the Roman wall puddled clay with flint, which continued in a northerly direction under the wall, but south of the point where the exposed portion ends no trace of a continuation of the wall itself could be found after a most careful search. The excavations were carried south completely across the site of the Horse Armoury, now pulled down, directly south of which under a road is a large tank about 20 feet deep filled with water for use in case of fire. The open space south of the tank, and between it and the modern (rebuilt) curtain wall, was formerly covered by a large warehouse, part of the substructions of which still remain underground. This area was also examined, pits and trenches being sunk in it to a level of the basement of the warehouse, far lower than the possible level of the footings of the Roman wall. Trenches were also tried northwards from the modern curtain wall, but without result, the whole site being composed of a mass of builders' and other rubbish, chiefly the remains of the destroyed warehouse left on the spot to avoid removal.

The walls of the passage leading from the basement of the White Tower to the Castle ditch near the river were also carefully examined for any signs of this tunnel having been carried through the Roman wall running east and west from the south-east angle of the City, but no traces of Roman work were found, and the level of the passage must have been lower than the base of the wall.

Although these excavations led to no result, and it can now hardly be hoped that any further remains of the Roman wall will ever be found within the Tower of London, the best thanks of all antiquaries are due to the First Commissioner of H. M. Office of Works, to the Constable, Lieutenant, and Major of the Tower, and to their officials, for permission to carry out the excavations made and for assistance in prosecuting them.

APPENDIX III.

Notes on the Non-marine Mollusca found in recent City Excavations, chiefly by F. W. Reader, Esq.; examined by A. S. Kennard, Esq., F.G.S., and B. B. Woodward, Esq., F.L.S.

London Wall.

In 1905 a shaft was sunk in London Wall by the Society of Antiquaries for the purpose of investigating the structure of the Roman wall, and a small series of molluscan remains were obtained. It is impossible to fix the date of these shells; they may be of any age between the Roman period and early Tudor times.

The species found were:

Vitrea cellaria (Müll), 1 example	Land.
Pyramidula rotundata (Müll.), 4 examples	Land.
Helix aspersa (Müll.), 1 example	Land.
Helicigona arbustorum (Linn.), 1 example.	Land.
Cochlicopa lubrica (Müll.), 1 example	Land.
Succinea elegans (Risso.), 1 example	Semi-aquatic.
Planorbis corneus (Linn.), 1 example	Aquatic.
Planorbis contortus (Linn.), 1 example	Aquatic.

All these species have been previously recorded from the site of the London Wall Estate Offices.[a]

New Broad Street (South Side).

From the extensive excavations made here in the spring of 1906, the most numerous molluscan remains that have been preserved are from the small Roman ditch.

Helix aspersa (Müll.), 3 examples.
Helix nemoralis (Linn.), 3 examples.
Helicigona arbustorum (Linn.), 5 examples.

The larger City Ditch is represented only by a single example of Helix aspersa (Müll.), but this is because no special effort was made to collect these later examples, while all those that were seen in the Roman ditch were saved.

New Broad Street (North Side).

The excavation here reached an old alluvial deposit, perhaps the remains of an old ditch. A number of molluscan remains were obtained at a depth of 15 feet from the

[a] *Proceedings of the Malacological Society*, v. part 2 (July, 1902), 180.

pavement level, though the deposit itself reached a depth of 30 feet. Five species were noted.

Limnæa stagnalis (Linn.), 1 example.
Limnæa peregra (Müll.), 6 examples.
Limnæa palustris (Müll), 6 examples.
Bithynia tentaculata (Linn.), 5 examples.
Planorbis umbilicatus (Müll.), 8 examples.
Planorbis contortus (Linn.), 1 example.

Houndsditch.

The base of the old Roman wall was exposed during the rebuilding of 59 and 61, Houndsditch, and from the crevices of the wall a large number of mollusca were obtained, probably of Roman age.

Four species were noted.

Vitrea cellaria (Müll.), 1 example.
Helix aspersa (Müll.), common.
Helix nemoralis (Linn.), 1 example.
Helicigona arbustorum (Linn.), common.

Cloak Lane, Dowgate Hill.

The excavation here was on the bed of the old Walbrook, but unfortunately the Roman level was not reached, the lowest part reached being probably of the thirteenth or fourteenth century, and the mollusca obtained are of this age.

Five species were noted.

Pyramidula rotundata (Müll.), 1 example.
Helix aspersa (Müll.), 1 example.
Helicigona arbustorum (Linn.), 1 example.
Planorbis umbilicatus (Müll.), 1 example.
Neritina fluviatilis (Linn.), 2 examples.

Copthall Avenue.

An excavation was made here and reached the old bed of the Walbrook, but only one shell was obtained, Planorbis umbilicatus (Müll.), which in all probability was of Roman age.

List of Invertebrate Remains (Marine) found at Cloak Lane.

Whelk—Buccinum undatum (Linn.).
Oyster—Ostrea edulis (Linn.).
Mussel—Mytilus edulis (Linn.).
Cockle—Cardium edule (Linn.).
Periwinkle—Littorina littorea (Linn.).

Of these the first three were the most abundant, especially the first-named species. This is worthy of note, since this species was extremely rare in the excavations on the site

of the London Wall Estate Offices. Of the oyster, both the small Thames estuary and the larger deep sea form were represented. Some of the oysters and one example of the whelk were "dead" shells, and were covered by the spat of oysters.

None of these records is of any great importance, yet since molluscan remains, though nearly always ignored by the archæologist, certainly have their value by throwing light on past physical conditions, we have thought it advisable to record them.

APPENDIX IV.

Remarks on the objects found in the City Ditch adjoining All Hallows Church, 1906.

POTTERY.

Stoneware.—Among the vessels of this class Bellarmines were by far the most numerous. The richly ornamented grey and blue stoneware of which Figs. 1 and 4, Plate XXVIII., are examples, were fairly plentiful. Of the brown variety, ornamented examples such as Fig. 5, Plate XXVIII., were scarce, but there were many plain brown jugs and bottles. (Fig. 20, Plate XXIX.)

Fig. 25. Examples of slip ware.

The costrel (Fig. 7, Plate XXVIII.) was exceptional, and is probably of Mediteranean origin. A costrel of similar manufacture is in the Guildhall collection, ornamented with a bird on a branch painted in dark brown.

Slip ware.—Jugs and other vessels of this ware in a more or less fragmentary condition occurred plentifully, but especially numerous were the remains of dishes and plates.

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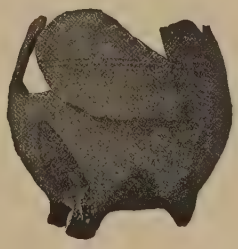

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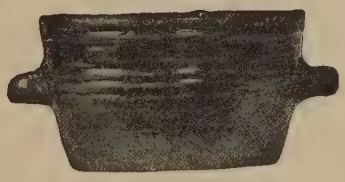

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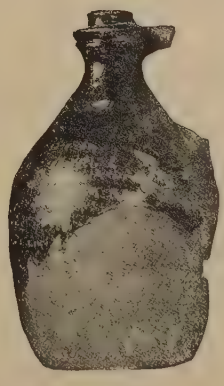

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POTTERY FROM THE CITY DITCH, NEW BROAD STREET.

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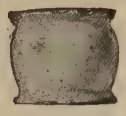

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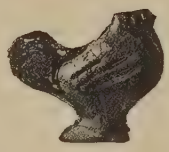

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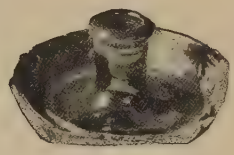

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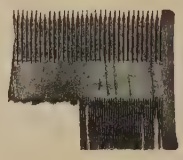

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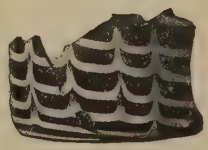

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39.

OBJECTS FROM THE CITY DITCH, NEW BROAD STREET.

The patterns were of great variety, but most commonly resembled those of Fig. 6, Plate XXVIII., and Fig. 35, Plate XXIX. These were mostly of white slip on a red body and glazed with a deep yellow, the ornament being chiefly formed by an arrangement of straight and curved lines.

Some were entirely composed of dots, such as *a* Fig. 25, while less commonly dots and lines were employed together, as *d* Fig. 25.

In some cases the body appeared to have been dipped in manganese, giving the background a deep rich colour when glazed. In these examples the glaze employed was a lighter yellow, making the pattern stand out in stronger contrast.

Another variety which was less common is shown in *c* Fig. 25. In this the ornament is more ambitious and refined, the glaze is thinner and almost colourless, except where it is used less sparingly when it shows a slight tint of green.

Some instances occurred where the body was of light buff clay decorated with red slip, but these were rare.

Delft.—This was the most plentiful of the ornamental wares, as a rule in the form of plates, bowls, and the well-known straight-sided jars as Fig. 26.

Fig. 26. Delft jar.

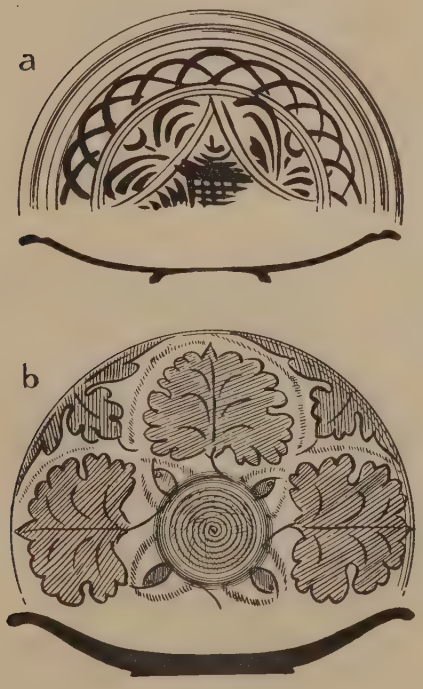


Fig. 27. Delft plates.

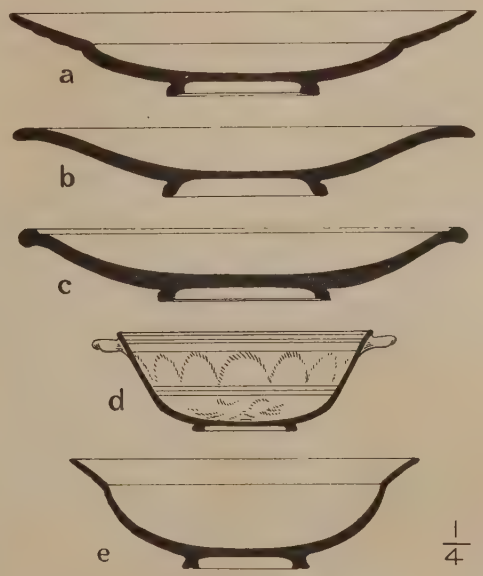


Fig. 28. Sections of Delft plates.

The plates were often of a deep form, some hardly to be distinguished from bowls. The patterns were chiefly of blue as in Fig. 27, but others had a good range of colour as in Fig. 39, Plate XXIX., being of blue and yellow, and *b* Fig. 27 which was of green, yellow, blue, and orange, outlined in dark purple. Sections of plates are shown on Fig. 27 and *a b* and *c* Fig. 28. A large proportion of the rims at the back were pierced, some with one and others with two holes for suspension. Many of the plates had been used for cooking or warming food by which they had become much darkened, some being a lustrous black, the pattern showing only by the relief.

Glazed earthenware.—Most of the larger vessels such as pitchers, pans, watering-pots, braziers, etc. were of red earthenware with brown glaze. The bright green glaze on a buff body occurred rarely except on smaller objects as chafing-dishes, candlesticks, money-boxes, pipkins, and a few basons. Even among these objects the bright green glaze was not as plentiful as yellow, brown, and brown-green.

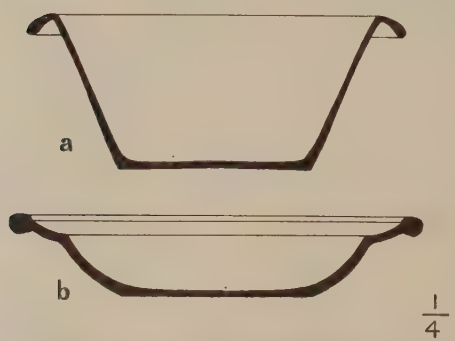


Fig. 29. Sections of glazed earthenware basons.

Large numbers of braziers occurred of the form of Fig. 9, Plate XXVIII., the taller form shown on Fig. 10 was uncommon. Many of these vessels contained pitch and resinous matter, and they appear to have been extensively utilised for industrial purposes.

Of watering-pots both the rose (Fig. 12, Plate XXVIII.) and the thumb-hole types (Figs. 13 and 14, Plate XXVIII.) were found in considerable numbers; but the latter were the most common, showing that they were largely used during the period represented by the filling of the City Ditch.

There were many jars and jugs of dark brown glaze (Fig. 16, Plate XXIX.), but much more numerous were the tygs of this ware both of one and two handles. (Fig. 15, Plate XXIX.) The heavy bases of these vessels were found in striking numbers, and they appear to have been the common drinking mug of the period.

There were mugs in slip and other wares such as Fig. 8, Plate XXVIII., but these were scarce in comparison with the tygs.

The flat form of candlestick (Fig. 24, Plate XXIX.) was much more plentiful than the upright form. (Fig. 23, Plate XXIX.)

Plates and large circular dishes were fairly plentiful both of red and buff earthenware with yellow or olive green glaze. They were generally larger and coarser than the plates of slip and delft, some being as much as 15 inches in diameter and $\frac{1}{2}$ inch in thickness. A plate or bowl of buff body glazed olive green on the inside is shown in section *b*, Fig. 29.

Glass.

The glass may be separated into two divisions, the ornamental and useful. The former

seemed to be entirely Venetian glass, and the bottoms of these cups were very numerous, but the upper portions were seldom found. There were many pieces of bottles with raised ornamentation, and Fig. 37, Plate XXIX., shows a portion of one of dark green with white enamel. The stem of an elaborately moulded cup is shown on Fig. 38, Plate XXIX.

Of the second division there were large dark bottles of squat form and tapering neck (Fig. 30), ranging from 6 to 10 inches in height, and numerous small white phials, as Fig. 36, Plate XXIX., which varied from 2½ inches to 6 inches in length.

There appeared to be no drinking vessels of glass in common use.

Fig. 30. Glass bottle.

Objects of Bone and Ivory.

Although large quantities of horn cores and animal bones were contained in the City Ditch filling, very few artificial objects under this heading were found. There were two bone skates, three pin-polishers, one of which was of unusual form (Fig. 31), having a hole cut in the side and two grooves. These seem to have resulted from the means employed to hold it in position during use.[a] A bone comb is figured on Plate XXIX.; a portion of another of similar form in ivory was also found. No bone pins occurred so far as we are aware.

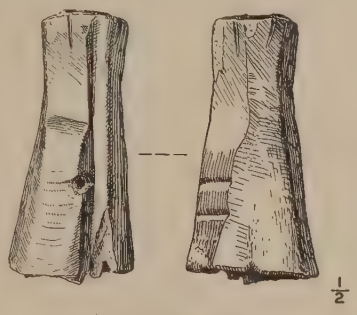


Fig. 31. Pin-polisher. ½

Objects of Metal.

There were many shears and knives, examples of which are shown, together with a file, on Plate XXIX.

An interesting find was a patten iron with portions of the wooden clog, which was of elm, still remaining. This was of the bent form (Fig. 32), which has survived to our own time. Mr. Miller Christy, in a recent article on these objects,[b] quotes the poet Gay to show that pattens of this kind were used as early as 1714:

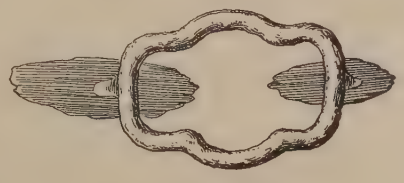


Fig. 32. Patten iron.

> Good housewives . . . . . .
> Safe through the wet on clinking pattens tread.[c]

[a] For further notices of these objects see *Proceedings of the Society of Antiquaries*, 2nd S. iii. 413; *Archæological Journal*, lx. 198; *Journal of the British Archæological Association*, xxii. 94.

[b] *Essex Review*, xv. 182 (Oct. 1906).

[c] *Trivia*, i. 212 (1714).

The position of our specimen was almost at the bottom of the City Ditch mud, which points to the origin of this form having been much earlier.

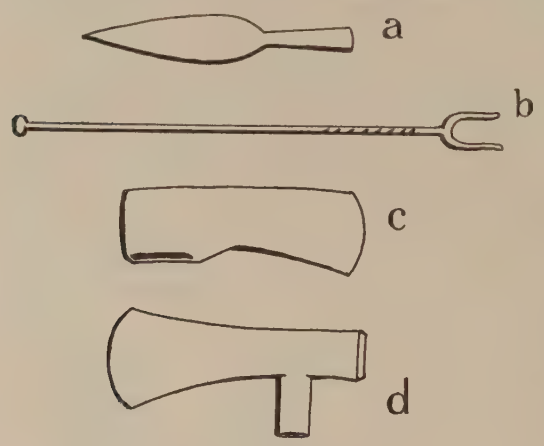


Fig. 33. Iron implements.

Iron implements were not common as far as we could see, but many of the objects discovered found their way into other hands. Among a variety shown to us by Mr. F. G. Hilton Price were those shown in Fig. 33: (a) an arrow-head; (b) a fork 2 feet 10 inches long; (c) an axe-head 9 inches long; (d) a combined hammer and axe. There was also part of a halbert head.

Other objects found by us were a brass squirt (Fig. 34), many brass pins and needles, and a number of Nuremberg tokens.

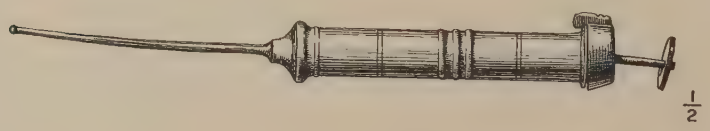


Fig. 34. Brass squirt.

DESCRIPTION OF PLATES XXVIII. AND XXIX.

Plate XXVIII.

Fig. 1. Portion of grey and blue stoneware jug, 7 inches high. Probably made at Rouen.
Fig. 2. Bellarmine, brown stoneware, 9 inches high. Rhenish.
Fig. 3. Bellarmine, brown stoneware, with arms of Amsterdam, 8¾ inches high. Rhenish.
Fig. 4. Portion of grey and blue stoneware jug, 7 inches high. Made at Grenzhausen, Nassau.
Fig. 5. Lower portion of brown stoneware jug, with frieze divided into eight lunette compartments, each containing two dancing figures. 4¼ inches high. Raevenware.
Fig. 6. Mug of slip painted ware, with motto "Feare God." White slip on red body, glazed yellow, 5¾ inches high. Metropolitan ware, about 1640.
Fig. 7. A two-handled costrel of light buff stoneware, ornamented with a dark brown flower on the shoulder, back and front. 8 inches high. Probably Spanish.
Fig. 8. Mug of barrel form, red earthenware, with brown-green glaze, ornamented with raised bands top and bottom, incised chevrons round the centre, 5½ inches high. Found in City Ditch, Circus Place, 1905.
Fig. 9. Brazier, dark red earthenware, brown glaze, 6¼ inches high, 9 inches wide.
Fig. 10. Lower portion of brazier, red earthenware, brown glaze inside, 7 inches wide.
Fig. 11. Two-handled basin of red earthenware, yellow-green glaze, diameter 7¼ inches, 4⅛ inches high.
Fig. 12. Watering pot of red earthenware, with rose, the top missing. The top of another example is shown at the side, 12½ inches high.
Fig. 13. Watering pot of red earthenware, with thumb hole at top and holes pierced in the base, 10½ inches high.
Fig. 14. Watering pot similar to fig. 13, but less conical in shape, 13½ inches high.

Plate XXIX.

Fig. 15. Single handled tyg of red earthenware, glazed dark brown, 4½ inches high.
Fig. 16. Mug of red earthenware, dark brown glaze, 4 inches high.
Fig. 17. Tin glazed ointment pot, 2½ inches high.
Fig. 18. Bowl shaped ointment pot, 2¼ inches high.
Fig. 19. Tin glazed ointment pot, 2¾ inches high.
Fig. 20. Brown stoneware bottle, 4½ inches high.
Fig. 21. Red earthenware pot, glazed green inside, 4¼ inches high.
Fig. 22. Brown glazed red earthenware whistle in form of a bird, the head missing, 2½ inches high.

Fig. 23. Candlestick of light buff earthenware, upper portion glazed bright green, 4½ inches high.

Fig. 24. Candlestick of light buff earthenware, glazed yellow, diameter 4½ inches.

Fig. 25. Light buff pipkin, glazed green on the inside, 5 inches high.

Fig. 26. Money box of light buff earthenware with yellow-green glaze, 4¼ inches high.

Fig. 27. Portions of chafing dish, light buff earthenware, the top part glazed green inside, diameter 7¾ inches.

Fig. 28. Bone comb, 2¾ inches wide.

Fig. 29. Portion of iron shears with catch and moulded handle, 7¼ inches long.

Fig. 30. Pair of iron shears, 9¼ inches long.

Fig. 31. Portion of iron knife, 6 inches long.

Fig. 32. Blade of iron knife, 7 inches long.

Fig. 33. Blade of iron knife or portion of shears, 5½ inches long.

Fig. 34. Iron file, 7 inches long.

Fig. 35. Fragment of plate, red earthenware painted with white slip, glazed yellow. For section of this plate see *b*, Fig. 23. Metropolitan ware, about 1640.

Fig. 36. Phial, 3 inches high.

Fig. 37. Base of Venetian (?) glass bottle, dark green painted with white enamel, diameter 2½ inches.

Fig. 38. Stem of Venetian glass vessel, ornamented with lions' heads and festoons, 3 inches high.

Fig. 39. Portion of bowl, decoration blue and yellow. The rim at the back pierced for suspension. Diameter 8¼ inches. For section see *e*, Fig. 29. ? Italian.

APPENDIX V.

Some Analyses of Roman Mortars, etc., by Leo Taylor, Esq., F.I.C.

In February, 1905, during some excavations in London Wall, the base of the City wall near Circus Place was laid bare, and the writer had the pleasure, in company with Mr. Reader, of inspecting the construction of the wall.

Samples of the mortar were taken for analysis, also samples of the clean sand at the base of the wall and of the black earth which was exposed by the excavation. (See section, Fig. 2.)

The black earth and sand do not call for any special consideration, and the analysis of these is simply given to be placed on record, and here follows:

	Black Earth.	Sand.
Gritty matter	77·5	86·2
Earthy matter, fine	9·5	8·6
Oxides of iron and alumina	1·0	1·9
Calcium oxide	5·1	0·1
Magnesium oxide	0·7	0·0
Carbon dioxide	3·2	1·0
Combined water and organic matter	3·6	3·2
	100·7	101·0

The mortar yielded the following figures:

Gritty matter	67·0
Fine earthy matter	3·2
Iron and alumina oxides	2·2
Calcium oxide	13·2
Magnesium oxide	0·8
Carbon dioxide	8·3
Combined water and organic matter	5·3
	100·0

Oxides of iron and alumina soluble in concentrated HGl	3·8
Ditto as insoluble silicates	1·7
Silica soluble in 10 per cent. NaHO	6·0
Silica crystalline or as insoluble silicate	60·3
Silica soluble in HGl	1·0

The carbonic acid found is only sufficient to combine with about four-fifths of the lime, but this is rather higher in proportion than usual with the Roman mortars, and therefore leaves a smaller amount than usual combined as silicates.

The proportion of commercial lime to grit in the mortar works out about 1 to 4 by weight, a lower proportion of lime than one expects in good mortar.

Then if one considers the soda soluble silica, it will be observed that this is not as high as has been found by other investigators.

All these points indicate that the mortar used in this particular section of the wall was distinctly inferior to that used elsewhere, and the chemical opinion thus deduced from the analysis certainly confirmed by the physical character of the material, which was softer and more easily crumbled than usual.

In June, 1906, the writer was furnished with a sample of red mortar from an old Roman bath then laid bare in Cannon Street.

The analysis of this sample was as follows:

Gritty matter	41·1
Fine earthy matter	7·1
Iron and alumina oxides	5 2
Calcium oxides	24·9
Magnesium oxide	1·2
Sulphur trioxide	1·6
Carbon dioxide	16·8
Silica soluble in HGl	0·8
Combined water and organic matter	2·0
	100 7

Oxides of iron and alumina soluble in concentrated HGl	10·3
Ditto as insoluble silicates	6·2
Silica soluble in 10 per cent. NaHO	7·9
Silica crystalline or as insoluble silicate	27·0
Silica soluble in HGl	·8

This sample was a very characteristic one of the red mortar, *i.e.* mortar made with crushed tiles as grit instead of or in conjunction with sand.

The very low percentage of silica indicates that crushed tiles were almost exclusively used, and the fine earthy matter was entirely red. The figures for iron and alumina compounds still further indicate this mixture.

As regards the lime compounds, it will be seen that six-sevenths of the lime exists as carbonate only, the low proportion on one-seventh being combined as silicate.

The proportion of silica soluble in soda is fairly high but does not in this instance carry conviction as to the strength of the mortar, because the gritty matter, composed as it is of tile, rather points to a softening effect than to a hardening one.

Plenty of lime was used in mixing the mortar, the figures being in close approximation to 1 of commercial lime to 1·3 of gritty tile.

Physically the mortar is exceedingly friable, breaking up easily between the fingers.

XI.—*Early Iron Age Burials in Yorkshire.* *By Rev.* William Greenwell, *D.C.L., F.R.S., F.S.A.*

Read 23rd March, 1905.

The primary purpose of this paper is to give an account of the investigation of a cemetery in the East Riding of Yorkshire, which has been carried out during the last few years. That purpose has been extended so as to make it include what has resulted from an examination of other, though similar, places of burial in the same district. Before, however, any description is given of what has been discovered by the various examinations of these burial sites, something by way of introduction seems to be required, and this it is here sought to supply.

The people who occupied Britain at the time of Cæsar's invasion, B.C. 55, were then, and had been for two centuries or more before that time, in possession of iron for the manufacture of weapons and implements. They were living during a period to which the term Late Celtic or Early Iron Age has been applied. These people, at least those dwelling in that part of the country, the Wolds of the East Riding of Yorkshire, with which this paper has principally to deal, buried their dead universally by inhumation, there not being in any case the slightest trace of the application of fire to the corpse. In this they differed from the custom of their predecessors in the same district, the people of the Bronze Age, who at one and the same time and place practised at their funerals the rite both of inhumation and cremation. Though throughout Britain as a whole at this period inhumation was the prevailing custom, in some parts, principally in

the south-eastern district, cremation appears to have been the mode of disposing of the dead. The cemetery at Aylesford, in Kent,[a] is a very noteworthy instance of the burial of the dead after burning, in that part of Britain. The cemetery at that place, and the same may be said of those at Shoebury and other sites in Essex,[b] if we may judge from the pottery and other constituents of the graves, appears to belong to a later part of the period in question than when the interment of unburnt bodies was the rule. This important change in the manner of burial rites and the advance in manufacturing power and artistic design, so fully exhibited at Aylesford, it is perhaps possible to explain. It may have taken place through an influence which came in with an encroaching immigration from oversea, as well as by trading and other intercourse with a higher cultivation in Gaul and elsewhere, which had affected the people of the opposite coast of Britain, more than it had those in other and more remote parts of the country. It must, however, be remarked in connexion with this suggested influence that the burials in Champagne, a not far distant part of Gaul, were except in rare instances, by inhumation.[c] The cremated burials in that part of Gaul appear to belong to a time not much, if at all, before that of those at Aylesford, but the interments by inhumation in the same district must be assigned to a century earlier or even to a date still further back. The Aylesford graves point to well-developed processes of fabric and ornamentation, in the lathe-turned and gracefully shaped pottery, where vases occurred very similar to those found in the Department of Marne (Fig. 1), and in the elaborately decorative bronze work, where even animal forms are introduced. It is possible, however, that some part of the pottery and metal work in that Kentish cemetery was not made in Britain, but was imported.

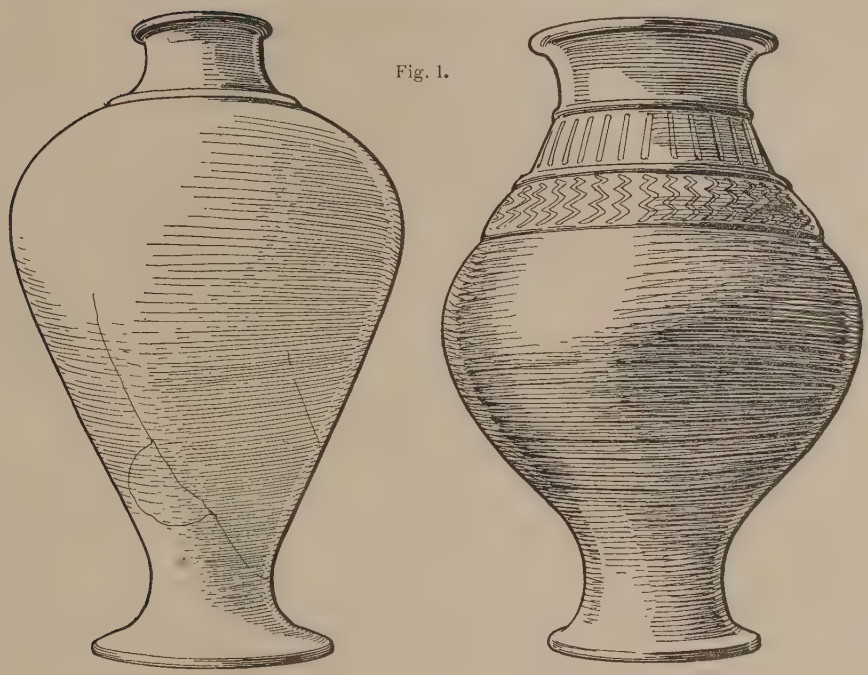
The ordinary mode of burial throughout the period over which the Early Iron Age extended in our country was to inter the dead in cemeteries of greater or less

[a] See a paper by Mr. Arthur J. Evans, F.R.S., F.S.A., in *Archaeologia*, lii. 315-388.

[b] Several discoveries of similar pottery to that found at Aylesford and Shoebury have been made elsewhere in Kent and Essex as well as in neighbouring places in that section of Britain. *Transactions of the Essex Archæological Society*, N.S. vi. 222. Reference may be made to the same *Transactions*, N.S. ix. 195. For a full account of these finds the reader is referred to Mr. Arthur Evans's paper on "A Late-Celtic Urn-Field at Aylesford," above noted.

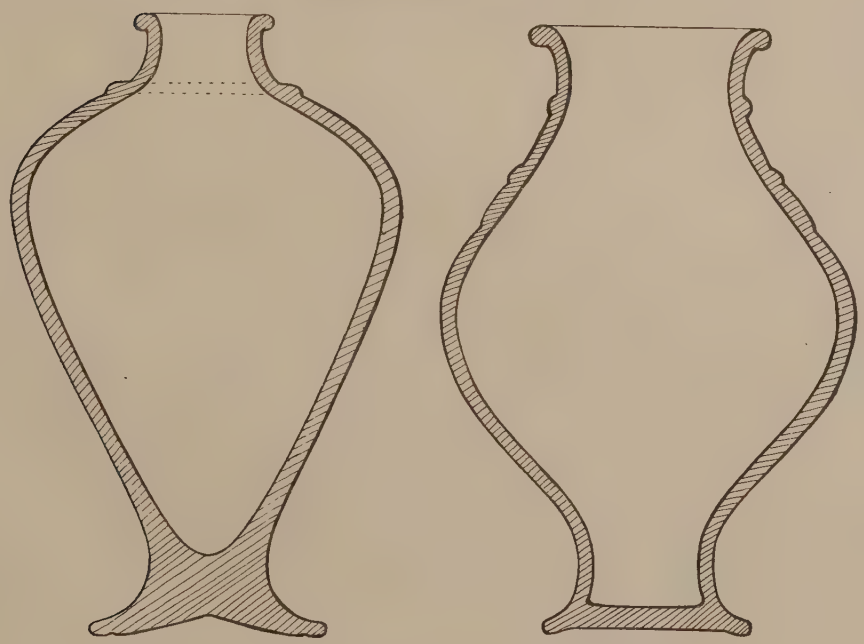
[c] M. Léon Morel mentions the discovery, at Saint Remy-sur-Bussy, of a cremated body in an urn with a glass armlet and an iron brooch. He also records a second instance at Vitry-le-François. (*La Champagne Souterraine*, Reims, 1898. Text, p. 185; album, plate 41, fig. 9.) In Gaul cremation seems to occur chiefly in the lower valleys of the Seine and Somme, and of the lower Rhone.

Fig. 1.



Aylesford, Kent. St. Remy-sur-Bussy, Marne.

Cinerary urns, Early Iron Age. (1/3.)



Sections of cinerary urns, Aylesford and St. Remy-sur-Bussy. (1/3.)

extent, though isolated places of burial have occasionally been met with. Within these sites the dead were placed in a grave or in a cist, formed by slabs of stone set on edge, with a cover, placed beneath a mound, smaller in size than most of the barrows of the Bronze Age. In some instances there is no appearance of a mound having ever covered the grave, but where the mounds were small, and cultivation of the ground had for long prevailed, all trace of them would naturally have disappeared. It is, however, quite possible that in some cases no barrow had ever been thrown up over the grave.

With the ethnological relations of these people, or their place on the stage of civilization, or their political and social position, this account does not in any way propose to deal, except incidentally, or so far as a more or less detailed description of the contents of the graves may afford that information.

The district in which the cemetery of the Danes Graves is situated (and the same is the case with the not far distant and similar cemetery at Arras) is that which, according to Ptolemy, was occupied by the Parisi, whose principal town was Petuaria, now represented, as has been suggested, by Beverley. These people may, with much probability, be regarded as an offshoot of the Gaulish tribe of the Parisii, whose territory comprised within its limits the capital of the later France, Paris (*Lutetia Parisiorum*). A similar relationship may perhaps be found in the name of the Yorkshire Arras, for, whatever may be its meaning, it appears to be the same word as Arras (*Nemetacum*), the chief town of the Atrebates, the great Belgic clan.

The place, the Danes Graves,[a] where the cemetery, of which an account is here

[a] They are mentioned by Leland, who writing about 1534-1543 says: "Adjacet et Drifelde ager cognomento Daniscus, multis interfectorum tumulis spectabilis. Famaque vulgaris est, belli alea regem in illo occubisse agro, sœviente per illa tempora tyrannide Danica." *Collectanea* (ed. 1770), iv. 34. Sir William Dugdale, in his Book of Arms, now in the Heralds' College, speaks of the place, which he appears to have visited, and states the number of the mounds, as he guesses, to be 300. The country people, he says, call them the Danes Graves. Other notices occur which it is not necessary to mention. There is an entry in the Kilham Parish Register which deserves to be given in full. "Memorandum, May 15th, 1721. That on the day and year abovesaid we began our Perambulation on the West side of Pockthorpe, and in our procession we came nigh the Danes Graves in Driffield field where out of Curiosity we caused a Man to dig in one of the said Graves when Digging we found a large thigh Bone one Leg Bone and one Scull of no extraordinary size with several other Bones after wch we continued our progress till we came to Gare Closes in Rudston field in wch round we could not find any Butts or Bounds had ever been set up by Kilham betwixt them and Nafferton, Driffield, Cottam, Langtoft and Rudston we began our motion at 9 o'clock and Returned at 2—being on Horseback in number 28 Horsemen. Tho. Prickett vicr."

given, exists, is the property of Mr. William Harrison Broadley, M.P., by whose permission the examination of a large number of the barrows has been made. The site is in the East Riding of Yorkshire on the chalk range of the Wolds, a district abounding in the burial mounds, weapons, and implements of the earlier bronze-using people,[a] and where also have been discovered a few places of burial and other remains of the people of the later (Neolithic) Stone Age. It is situated about four miles north of Driffield, within which parish the barrows are placed, at a point where the three parishes of Driffield, Kilham, and Nafferton converge. The barrows still remaining, a part only of those which originally constituted the cemetery, are about two hundred in number, and occupy a position in a wood on the lower part of the slope of the hill. It has been stated that at one time there were as many as five hundred mounds, and there is no doubt that the cemetery once extended far beyond the limits of the wood. The former existence of mounds, now entirely levelled, is shown by the appearance of round patches of white on the brown surface of the adjoining field, due to the chalk rubble brought up from beneath by the excavation of a grave. An almost equally large cemetery of the same period exists in the district at Arras and Hessleskew, where the mounds, the graves, and their contents present features which have many things in common with those of the Danes Graves. No description, except a very short and incomplete one, has yet been given of the discoveries made in the cemetery at Arras in 1815, 1816, and 1817.[b] I propose, therefore, to introduce into this paper an

[a] The district of the Wolds is also largely covered with lines of earthworks, either defensive or limitary, the date of which is uncertain. Of these the Danes Dyke near Flamborough, which defends the promontory upon which that place is situated, is the most striking in its appearance, as it is in other ways the most noteworthy. The investigation of the great rampart and its accompanying ditch, which was made by General Pitt-Rivers, proved that it had been constructed by people who were using and making implements of flint, and was therefore almost certainly antecedent to the introduction of iron. *Journal of the Anthropological Institute*, xi. 455. *Report of the British Association* (1881), p. 690.

[b] A short manuscript account, drawn up by the Rev. E. W. Stillingfleet, of what was found by him and others at Arras in the years 1815, 1816, and 1817, is preserved in the library of the Yorkshire Philosophical Society. In the museum of the same society at York are contained those relics which fell to Mr. Stillingfleet's share of what was then discovered. From these notes, illustrated by the articles themselves, I have been enabled to obtain much information about the contents of the graves at Arras. Notices of the cemetery at Arras are to be found in the following books: Oliver, *History of Beverley*, 3, 4, with a plate; a short note by Mr. Stillingfleet in the York volume of the Archæological Institute, 1846, with illustrations; Davis and Thurnam, *Crania Britannica*, vol. ii. under "Skull from Arras." In the plate attached many of the articles from Arras and Hessleskew are figured, but not very satisfactorily.

account of some of the more remarkable and illustrative features which the graves at that place have disclosed. In addition to these two burial sites, other cemeteries of the same people exist in the East Riding. One consisting of a large number of small mounds remains practically unexplored at Scorborough,[a] and not far distant from that place, at Westwood, close to Beverley, I examined two barrows, part of a small group, in one of which were some remains of a chariot and the bits of the horses which drew it.[b] At Cowlam four small barrows were opened, which may have formed a portion of a larger number, for as those examined were scarcely distinguishable on the surface of the field, others may have been completely obliterated by the plough.[c] In one of them a very beautiful bronze armlet still remained on the right wrist bone of the buried woman (Fig. 2). In another, in addition to a bronze armlet (Fig. 3) in the same position, was a bronze brooch

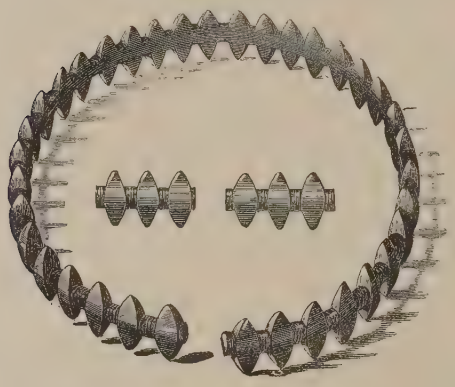


Fig. 2. Bronze armlet from Cowlam, Yorks. (½)

Fig. 3. Bronze armlet from Cowlam, Yorks. (½)

(Fig. 4) placed in front of the chin, and close by it what had been a necklace of dark blue glass beads, all, except one which had a series of annulets upon it, ornamented with a zigzag pattern in white glass. A very valuable discovery was made on March 20, 1868, at Grimthorpe on the north-west section of the Wolds. In an oval grave, together with the skeleton of a young man, there were

Fig. 4. Bronze brooch from Cowlam, Yorks. (½)

[a] Six of the mounds were opened by Mr. Mortimer in 1895, but in none of them was anything found except the bones of the bodies. *Proceedings of the East Riding Antiquarian Society*, iii. 21.

[b] *British Barrows*, 456.

[c] *British Barrows*, 208 *seq.*

Fig. 5. Iron sword in bronze sheath from Grimthorpe, Yorks. ($\frac{1}{4}$)

Fig. 7. Bone skewer from Grimthorpe, Yorks. ($\frac{1}{1}$)

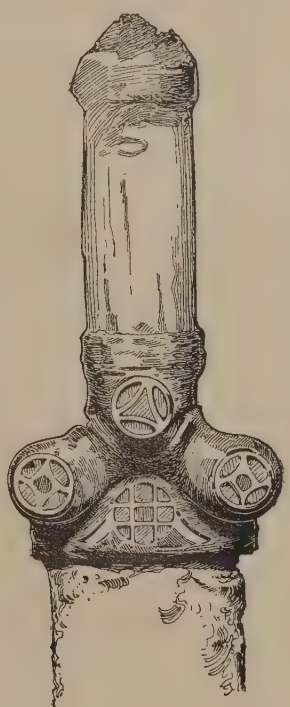


Fig. 8. Enamelled sword-handle from Thorpe, Yorks. ($\frac{3}{5}$)

Fig. 6. Bronze fittings of a shield from Grimthorpe, Yorks. ($\frac{1}{6}$)

found an iron sword in a bronze sheath (Fig. 5), the bronze fittings of a shield (Fig. 6), a spear-head and other objects of iron, and sixteen bone pins, (Fig. 7).[a] An iron sword, with enamelled bronze fittings to the handle, was discovered at Thorpe, near Rudstone (Fig. 8). There were no remains of a body, though the nature of the gravel at the place is such as would tend to the preservation of bone. It is, however, quite possible the sword had originally been interred with its owner. An important find was made in 1903 at North Grimston, where, associated with the skeleton of a man, several articles were discovered. They comprise two iron swords of unequal lengths, which were encased in sheaths of the same metal. The shorter one has a bronze handle, which is terminated on the top by a human head. Some iron rings, probably for fastening a sheath to its belt, pieces of the half of a bronze tube, split longitudinally, and part of a jet object were also found in the grave. The body had been laid on the back at full length, with the head to south, and close by were the head and some bones of a pig.[b]

The barrows constituting the cemetery at the Danes Graves have been subjected to examination on several occasions. Five were opened by the Yorkshire Antiquarian Club in 1849, a single one having been rifled before 1830, when the bronze armlet, once in the Ashmolean Museum at Oxford, was found.[c] In 1849 or 1850 Mr. Thomas Kendal of Pickering opened three of the mounds, finding nothing but the skeleton and some pieces of corroded iron.[d] Fourteen were examined by me in 1864,[e] and others were afterwards opened by Mr. Mortimer. The uprooting of some trees by a storm in the autumn of 1881 disclosed at least two interments, with one of which was deposited an imperfect vessel of pottery, and close by it a portion of the humerus of a young pig, once probably contained within the pot.[f] In 1897 and 1898, under the direction of a

[a] An account of the grave was given by Mr. J. R. Mortimer, who supposed the burial to have been of an "Anglo-Saxon," in *The Reliquary*, ix. 180, plates xxii. xxiii. The articles found are now in the British Museum. There were other graves discovered, but all inquiries have failed to obtain any particulars about them.

[b] J. R. Mortimer, *Forty Years' Researches in British Grave Mounds*, 354 *seq.*

[c] The armlet was given to the Ashmolean Museum by the Rev. William Drake. There was also found on the left forearm of the skeleton a highly polished but imperfect jet armlet. Both the armlets are now lost. An iron comb is said to have been laid under the skull. It was probably the remains of an iron brooch. *Archæological Journal*, xvi. 83, where is a figure of the bronze armlet. (See fig. 19 *post.*)

[d] Paper by Mr. Mortimer, *Proceedings of Yorkshire Geological Society*, xiii. 291.

[e] *Archæological Journal*, xxii. 108.

[f] Paper by Mr. Mortimer, *Proceedings of Yorkshire Geological Society*, xiii. 296, plate xlii.

Committee of the East Riding Antiquarian Society, a careful and systematic investigation was made of fifty barrows, of which four had been previously opened, and in 1899 Mr. Mortimer examined twenty, of which thirteen were intact.

The cemetery has been commonly spoken of as a burial place of the Danish invaders, the name attached to the graves being supposed to indicate the people who were buried there. The designation of Danes Graves is probably to be explained by the impression made on the Anglian and Saxon occupants of the land by the cruel devastations of the Northern hordes. In the estimation of our remote predecessors Dane and Devil were almost synonymous terms, and as any work the origin of which was unknown to them was not unnaturally attributed to the Devil, so it was equally credited to the Danes. We thus have Danes Graves and Danes Dyke in Yorkshire, Grime's (Devil) Graves in Norfolk, Devil's Ditch in Cambridge, Græme's Dike in Scotland, and other places similarly named.

Down to 1897 nothing had been found in the graves to indicate a Danish origin, nor, with one exception, had anything been met with which gave the slightest indication of the people to whom the burials belonged. The exception is the armlet once in the Ashmolean Museum, upon the decorative part of which Late Celtic influence is manifest. In the graves examined by the Yorkshire Antiquarian Club and by myself and Mr. Mortimer, all that was found, in addition to the human skeletons and animal bones, were pieces of plain, dark-coloured, rudely-made pottery, portions of vessels similar to those since discovered, and some much corroded and indeterminate pieces of iron, most of them no doubt parts of brooches. It was only in 1897 that conclusive evidence was obtained to enable a correct attribution being arrived at.

It is not intended, nor is it necessary, to make this account a circumstantial record of the contents of all the graves examined in 1864, 1897, 1898, and 1899, but only of those which, on account of the nature of the buried grave-goods and other things connected with them, seem to require a more particular and special description. It will be sufficient to give a general statement of the features which characterise the barrows as a whole, and the graves with their contents, including the way in which the bodies had been deposited within them.

The grave mounds, which occupy a considerable area, are not arranged with any regularity, but are scattered over the ground. Sometimes three or more are placed near to each other, constituting small groups, at other times a single mound is placed by itself. They are all of the same form, that of a shallow inverted bowl, nor do they vary to any great extent in size, being from 10 feet to 33 feet

in diameter, and from $1\frac{1}{4}$ foot to $3\frac{1}{2}$ feet in height. Many have a shallow trench surrounding them, close to the base, and possibly they all had one when they were first thrown up. This feature is mainly due to the earth, of which the mounds are formed, having been taken from the space immediately surrounding the place on which they stand. It is possible, however, that the trench may have had some ceremonial or ritual significance, and may have served the same purpose as the circles of stones or the trenches, found sometimes surrounding, and at other times within, the barrows of the Bronze Age.

The body or bodies (for in rare instances more than one interment had been made in a mound) were placed in an oblong grave, rounded at the corners. In a few cases there was no grave, the soil having merely been scraped away, and once the body had been laid on the original surface soil, there being, however, a slight natural depression at the place.[a]

The graves, which as a rule were excavated into the chalk gravel beneath the mould, varied in size and direction. They ranged from $3\frac{3}{4}$ feet to 7 feet in length (one, however, was 9 feet long and $7\frac{1}{2}$ feet wide), from 2 feet to $4\frac{3}{4}$ feet in width, and in depth from $\frac{1}{2}$ foot to 3 feet; the average size being about 5 feet by $3\frac{3}{4}$ feet, with a depth of $1\frac{1}{2}$ foot. In respect of compass direction, out of a total of thirty graves, twenty were north-east and south-west, six north-north-east and south-south-west, two east-north-east and west-south-west, and two east and west.

The bodies were generally deposited at the middle of the grave on the bottom, but sometimes at the side. They were all laid in a contracted position, the knees being drawn up towards the face, some indeed so much so as to suggest their having been tightly swathed before burial; in a few cases the body had only been loosely contracted. They were placed on the side, but now and then a skeleton had the appearance as though the body had been laid on the back or front. This is due, I believe, to the bones having been pushed out of place when, after the flesh had decayed, the overlying material fell down upon the bones and disturbed them. The hands were frequently found up to and in front of the face, the hand belonging to the side on which the body had been laid being sometimes under the head. The position of the arms varied; sometimes they were crossed over the chest, at other times one was outstretched in front, or placed on or under the hips or before the knees.

[a] Mr. Stillingfleet says: "The body was frequently laid on the surface of the native bed of chalk. But in many instances we found a cist or excavation in the chalky rock of the depth of about a foot, in which the body was deposited. In a few instances the body was interred above the surface of the chalk."

With regard to the side on which the body had been laid, and the compass direction in which the head pointed, I have been able to ascertain the relative position in seventy-one cases, as is shown in the following table :

Direction of Head.	On the left side.	On the right side.
Head pointing to N.	7	3
„ N.N.W.	2	—
„ N.W.	—	1
„ W.	2	1
„ W.S.W	4	1
„ S.W.	6	1
„ S.S.W.	3	1
„ S.	3	—
„ S.E.	—	1
„ E.	3	1
„ E.N.E.	1	—
„ N.E.	24	1
„ N.N.E.	2	3

It will be seen from this table that by far the larger number were laid on the left side, and that about one-third had the head pointing to north-east. It does not seem, however, that the dead were laid in the grave with the face turned towards the sun, as appears to have been the usual practice of the people of the Bronze Age.[a]

There was no appearance, either at the Danes Graves or Arras, of the bodies having been enclosed in a wooden coffin or in any way protected by wood, in which they differed from many of the burials in the barrows of the Bronze Age. In some cases, however, pieces of chalk were found placed round the skeleton in

[a] The question is discussed in *British Barrows*, 25.

such a manner as to show it was done with intention. That the bodies had been deposited in the grave in their ordinary dress or in some kind of wrapping is shown by the occurrence in many instances of a brooch in front of or behind the neck, and by the presence of dark matter which had the appearance of being the remains of cloth. In one instance a pin was found at the back of the head, but it had been more probably used for the hair than for the dress. There was nothing at all like the buttons or other dress-fasteners which have so often been found in connexion with the body in Bronze Age burials.

Decorative articles were very uncommon; they are represented by the bronze armlet before mentioned, once at Oxford, by another, also of bronze, found in 1899, by two armlets of iron, by a portion of one of jet, by some very small short tubes made of thin bronze, which may have been beads, and by a single bead of glass. At Arras and at Cowlam bronze armlets were of much more frequent occurrence, and at both those places a number of fine glass beads were found. At Arras both gold and amber was present in the shape of rings, but only in one case, where the two rings occurred in the same grave.

Neither at the Danes Graves nor at Arras was there anything of the nature of a weapon or implement; there was no sword, spear, knife, or axe, nor any article of warlike or domestic use, except a solitary spindle whorl at the Danes Graves and one at Arras. That weapons were occasionally placed in the graves of these people is known from their having been so found in Britain; indeed there are three cases on the Wolds themselves where a sword was discovered, one at Grimthorpe, another at North Grimston, both already mentioned, and a third at Thorp, near Rudstone, where, however, there was no absolute proof that it had accompanied a burial.

The most important discovery at the Danes Graves was that of a chariot, one out of possibly eight which have been found on the Wolds or in their immediate vicinity. Three of them were exhumed at Arras and one near to Beverley. A complete account of these chariot-burials, with their attendant circumstances, will be given later on, when the incidents connected with some of the more noteworthy graves and their contents are described.

It is a fact not only strange but difficult of explanation, that, with two exceptions, no burial with which a chariot was associated has been found anywhere in Britain except in Yorkshire, and that there out of possibly ten in number, six should have been on the Wolds and two in the immediate neighbourhood. This is the more extraordinary when it is considered how abundant the chariot must have been throughout the country at large. In addition to the

historical evidence, there is the frequent discovery in almost every part of Britain of articles which were evidently intended for use in the harnessing of horses, many of them apparently for draught purposes, as well as of other things which seem to have formed part of the construction of the chariot itself.

The use of the chariot as a warlike apparatus continued longer in Britain than it did in Gaul, from which country it had no doubt been introduced. It had disappeared thence before the time of Cæsar's campaigns, having been displaced by cavalry, with which arm the Gaulish tribes were well equipped. The distribution of the chariot, and the time during which it was used in various places for

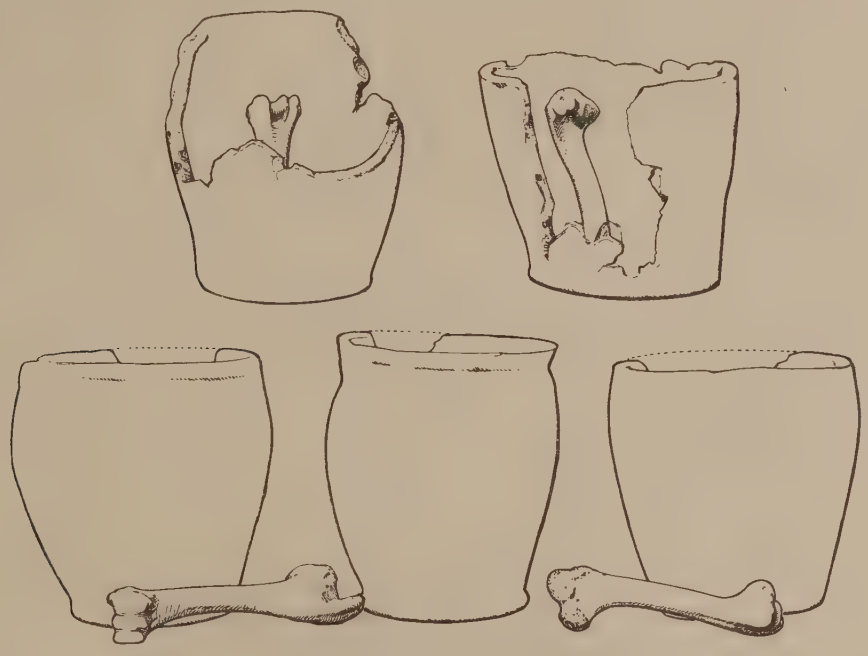


Fig. 9. Clay vessels and bones of pigs found at the Danes Graves. ($\frac{1}{3}$.)

military purposes, is an interesting subject of inquiry, but cannot be entered upon in this account, where it is sufficient to emphasize the fact of its prevalence in Britain at the time in question.

Among the objects found most commonly in the graves were clay vessels, generally in the condition of mere fragments, almost always placed in close connexion with the bodies. The vessels were all, more or less, of one form, and of similar material and manufacture. They are hand-made, of poorly worked and imperfectly fired clay, with small pieces of flint intermixed, of a

dark colour inclining to black, rudely fashioned, and quite destitute of any kind of ornamentation.[a] The shape is not unlike that of an ordinary brown jar, but one has the straight sides slightly expanding to the mouth. They are all small, ranging from $4\frac{1}{2}$ inches to $5\frac{3}{4}$ inches in height, from $5\frac{1}{8}$ inches to $5\frac{3}{4}$ inches wide at the mouth, and from $3\frac{1}{4}$ to $3\frac{3}{4}$ inches at the bottom. (Fig. 9). There is a circumstance in connexion with them, which can scarcely be accidental, and which is quite inexplicable; they are all imperfect, and even those which approach a perfect condition are rare. This incompleteness cannot be accounted for by decay or damage after they were placed in the grave, for it is quite certain they were imperfect when so deposited.[b] Their position with regard to the body varied; in two cases the vessel was behind the shoulders, in one case it was behind the head, and two were placed at the knees. They appear to have been wanting at Arras, for though Mr. Stillingfleet records two instances where pottery was found there, the only article of the kind which has been preserved at York among the relics given by him to the museum there is a portion of a cinerary urn of the Bronze Period.[c] It is possible that small pieces of pot may have been overlooked by Mr. Stillingfleet, or he may not have thought them worth notice; but it is very unlikely he should have neglected to mention the discovery of a vessel which was in any degree perfect. At Cowlam several pieces of similar ware to that of the Danes Graves were found, but in every case they were mere sherds.

There can be no doubt as to the object with which these vessels were placed in the graves; they were receptacles of food. In the case of four of them the bone of an animal still remained within when they were found,[d] and the fifth had no doubt once contained either flesh without any bone or some provision like pulse, all trace of which had disappeared through decay. In the graves of the people of the Bronze Age a vessel of pottery is a frequent accompaniment of a burial, whether of a burnt or of an unburnt body. In some of these vessels there was found the remains of matter, which an analysis proved to be of animal or

[a] Very similar vessels in shape, size, and nature of clay and baking have been found with cremated interments in Essex, apparently of the Late-Celtic period. In one case an iron spear-head was found inside the pot. Some of these vessels are preserved in the Museum at Colchester.

[b] An imperfect vessel was found by Mr. Mortimer, and is figured in the paper referred to in Note [f], p. 8.

[c] Some of the barrows at Arras belonged to the Bronze Period. A portion of a cinerary urn, referred to in the text, now in the Museum at York, among the relics from Arras, came from one of them.

[d] Some of the vessels at Somme-Bionne and in Marne contained bones of pig, sheep, and other animals. Morel, *La Champagne Souterraine*, 69.

vegetable origin, but, so far as my experience goes, there has never been any portion of bone found in them, though on many occasions the bone of an animal has occurred in association with an interment, where no vessel was present. In every case at the Danes Graves the bone was the humerus of a young pig, either the whole or with one of the ends broken off. In some graves the same bone was found in connexion with the body where there was no pot or any part of one. In one barrow the entire skeleton of a pig had been deposited, and in two there was found the skeleton of a goat, but in these cases they may not have been put there with the same purpose for which a smaller portion of the animal had been placed in the grave. At Arras the foreparts of the skeletons of two pigs were met with in one barrow, and the heads of two pigs in another. Dr. Thurnam mentions that in a barrow opened by the Yorkshire Antiquarian Club in 1850, at the Danes Graves, part of the skull and some bones of the foreleg of a young pig were discovered. Mr. Stillingfleet does not record in his notes anything about the finding of small portions of the bones of the pig or of any other animal at Arras. It may be, as has already been suggested in reference to pieces of pottery, that he did not think the discovery of a small portion of bone of sufficient importance to make a note of it; still this apparent absence of animal bones seems to coincide with the absence of any vessel of pottery in the graves at Arras.

The pig, therefore, appears to have been the favourite animal in the dietary of these people, if the provision made for the dead may be taken as an index of the taste of the living. Their predecessors of the Bronze Age seem to have had the same appreciation of pork and of the same joint, for part of the fore leg of a young pig has occasionally been found with an interment of that time.[a]

The presence of charcoal in close proximity to an unburnt body, so universal a feature in the graves of the people of the Bronze Age,[b] was not noticed, except in a few cases, at the Danes Graves, and in these it may only have been there accidentally.

Before an account is given of those graves and their contents which require a special description, it is desirable to notice specially certain articles which were connected with the series of burials as a whole. Their number is only small, for the graves, except in rare instances, contained nothing beyond the bones of the

[a] The finding of a bone of any animal, deposited with the body, is of rare occurrence, though bones, usually broken to extract the marrow, are frequently met with in the material of the barrow. I do not remember more than one or two occasions where any animal bone, except that of a pig, has been found associated with a burial of the Bronze Age.

[b] *British Barrows*, 30.

buried person, accompanied, now and then, by the bone of an animal or a pot or some part of one.

The articles found in connexion with the interments consisted, in addition to the chariot and its belongings, of fastenings of the dress of more than one kind, of personal ornaments, and of a spindle-whorl. The most frequent of these was the brooch (*fibula*), of which there were two made of bronze, part of (possibly) a third of the same metal, and a number made of iron, almost all of which were in a very decayed and fragmentary condition from the oxidization of the iron.

The two bronze brooches are remarkable and of more than ordinary interest, one of them especially so, in regard to its form, the nature of its design, and the material of which a part of the decoration is composed. They both differ from

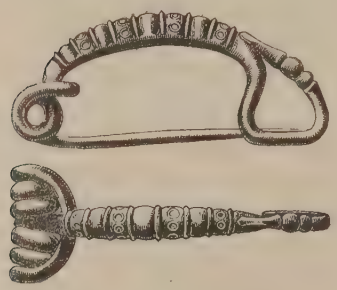


Fig. 10. Bronze brooch, Dux, Bohemia. (½.)
(La Tène I. type.)

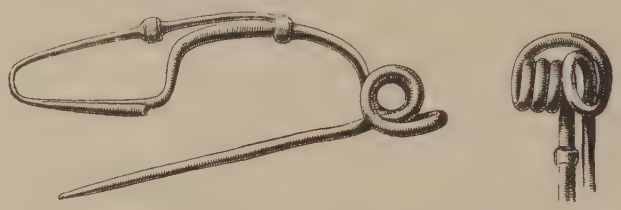


Fig. 11. Iron brooch, La Tène, Switzerland. (⅔.)
(La Tène II. type.)

Fig. 12. Bronze brooch, Swiss lake-dwelling. (⅔.)
(La Tène III. type.)

the type which ordinarily characterises the brooches of the Late-Celtic Period, to some part of which time they undoubtedly belong. The form and construction of that type, which, with many and varied modifications, prevailed throughout a considerable space of time, and was spread over a wide area, is possessed of very distinctive and well-marked features. The bow of the brooch, which is more flat than curved, has at the head a spiral coil, constituting a spring, from which the pin is prolonged. The other end of the bow is drawn out, and after forming the catch for the point of the pin, is turned back upon itself, ending usually in an ornamental termination. The two brooches from the Danes Graves and one from

Arras differ essentially from this particular form,[a] to which the name of La Tène has been attached. (Figs. 10, 11, 12.)

The larger and more decorated brooch is $2\frac{3}{4}$ inches long and somewhat massive. (Fig. 13.) The body is bow-shaped, but it does not curve upwards as is usual, but in the contrary direction, thus making the top concave. The pin is parallel to and follows the same line as the body of the brooch, the point fitting into a catch, formed in a rather peculiar way, at what has more the appearance of the head than the tail of the bow. The head of the pin is not constituted by a spiral spring, but swings on a pivot, which is held by two small plates riveted to the body of the brooch. The brooch is made entirely of bronze, with the exception of the pivot, which is iron, much of the decorative portion being vitreous paste.

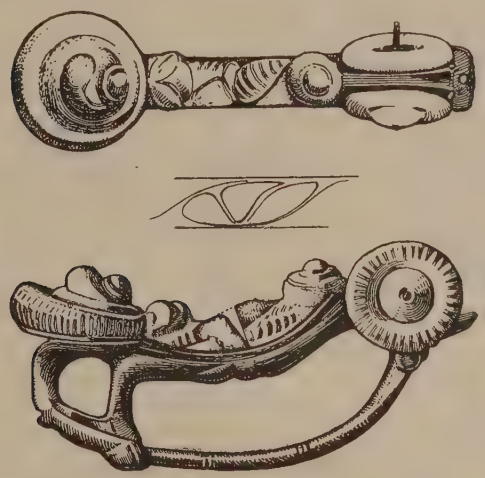


Fig. 13. Bronze brooch, with paste decoration, from the Danes Graves. ($\frac{1}{1}$.)

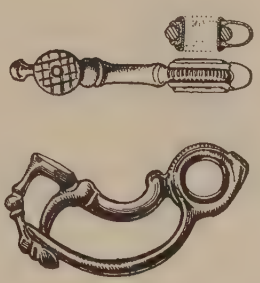


Fig. 14. Bronze brooch from the Danes Graves ($\frac{1}{1}$.)

Whatever may have been intended to be represented on its ornamental part seems to be constituted by the bronze and paste combined. On each side of the hinge of the pin is a circular ring of paste, grooved on the edge, and filled at the centre with a boss of the same material (one of the rings and boss is now wanting).[b] As this brooch and other articles are fully illustrated by figures, and will be best understood through them, it will only be necessary to give a somewhat brief account of each one as it comes under notice.

[a] The brooch found in one of the graves at Cowlam is a quite typical one. *British Barrows*, 209.

[b] The design may originally, when it was applied to an earlier piece of ornamented work, have presented some special form, of which the pattern on the brooch is a degenerate and meaningless representation.

The other brooch (Fig. 14), a much smaller one, but very delicately and skilfully fashioned, is made entirely of bronze, except that it had originally a small disk, probably of paste, now lost. As the pin works in a somewhat novel way it will be well to note its peculiarity. The head is formed by two round loops, shaped like a pair of spectacles, one of which is bent back upon the other, to enclose the corresponding loop at the end of the body of the brooch. Through the circular hole thus made, a tube, which acts as a rivet, is passed, the edges being turned over to embrace the sides of the hole, in the same way as an eyelet hole is formed.[a] There is some similarity between the pattern on this and that on the larger brooch, and both have the same fine grooving on the edges.

It has already been mentioned that a number of iron brooches were found in the graves.[b] They were all, with one exception, very much corroded and in a quite fragmentary condition, so imperfect, indeed, that but for the complete one

Fig. 15. Iron brooch from the Danes Graves. (¼.)

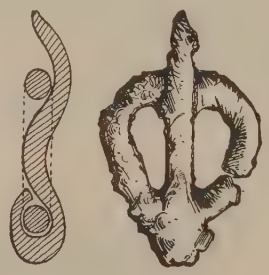


Fig. 16. Penannular ring brooch from the Danes Graves. (¼.)

it would have been impossible to say what was represented by them. Though they vary in size, they all appear to have been very similar in shape and construction. The perfect one (Fig. 15), which is 3½ inches long, has been manufactured from a piece of round iron wire, by making a single coil at the head and turning the wire round to form the pin, the pointed end of which is fitted into a clasp

[a] A very similar brooch was found, with a contracted body of a woman, in a grave at Newnham, Cambridge. It was laid on the bones of the chest with two other brooches; placed on the right arm just above the wrist was a bronze armlet. Some other articles of bronze were found in the grave, the whole contents of which are in the museum of the Cambridge Antiquarian Society. A brooch almost identical in form and structure was found in 1886 at Beckley, near Oxford, and is now preserved in the Ashmolean Museum.

[b] Mr. Stillingfleet does not appear to have detected the nature of some of the iron articles he found at Arras, but from his description it seems certain that one was a brooch, though, apparently, it was the only one discovered there.

made by bending back the other end of the wire to meet it. It is in every way made like the present safety pin. In one of the graves an iron article which has the appearance of a buckle was discovered. (Fig. 16.) It is much corroded, but the opening in the ring is quite apparent, and there can be no doubt that it is a circular penannular brooch. Two similarly formed brooches of bronze, but of superior workmanship, were found in a barrow at Huntow, near Bridlington, in the East Riding. They were accompanied by a third brooch, also of bronze, which has a spiral spring at the head of the pin.[a]

The position in which these brooches were almost always found, close to the neck of the body, seems to imply that they served for fastening the dress in which the person was buried, though they might have been used in connexion with a shroud, if such a funeral investment was provided. The penannular brooch just mentioned, the only perfect one of that form met with, was placed between the back of the head and the shoulders of the skeleton. It has been made from a piece of round iron wire, is circular in form, 1 inch wide, and quite plain. The pin, looped at its head over the ring, is $1\frac{1}{2}$ inch long and projects a little beyond the ring. In the grave where an iron armlet was found on the left wrist of the skeleton, a small iron article had become attached to the lower jaw through the oxidization of the metal. It is 2 inches long, $\frac{1}{2}$ inch wide at the broadest part, and shaped like an attenuated figure of eight, one lobe being slightly longer than the other. It had probably served some purpose in fastening the dress.

Fig. 17. Bronze pin from the Danes Graves. (½)

The only other article which may have been connected with clothing, though its position at the back of the head, some of the bones being stained green by the contact, suggests that it had held together and adorned the hair, was a very well made and prettily decorated pin. (Fig. 17.) It is 5 inches long, and has a head formed by a circular ring, which encloses a cross. Out of the entire length the circular head occupies $2\frac{1}{2}$ inches. The head, which resembles a wheel with four spokes, is composed of a ring

[a] Wright, *Essays on Archaeological Subjects*, i. 22. A brooch not unlike that from the Danes

of bronze, grooved on each side and on the outer edge. The ring encloses a cross, which has a round boss of white material, probably coral, at the centre, and a similar one at the middle of each limb. The enclosing sides of the groove on the outer edge of the ring have a corded pattern upon them. The groove extends to only three-quarters of the circumference, and out of the fourth the pin itself springs, making a curve of $\frac{3}{4}$ inch, and then tapers gradually in a straight line to a point. The grooves on each side and on the edge are filled with coral, and a round boss of the same material is fixed by a bronze pin to the upper part of the curve at the top of the pin.

A pin, found in the bed of the Thames at Hammersmith, has so much in common with that from the Danes Graves, and is so interesting in itself, that a description is here given of it. (Fig. 18.) It is $4\frac{3}{4}$ inches long, of which the head occupies $1\frac{3}{4}$ inch, the remaining part, including the bend, being $3\frac{3}{8}$ inches long. It is made of bronze ornamented with coral. The upper part of the head is oblong, $\frac{15}{16}$ inch by $\frac{9}{16}$ inch. Placed on the top of this are four cylindrical pieces of coral $\frac{8}{16}$ inch long, fastened by pins which pass through a narrow ribbon of bronze of a wavy pattern and through the pieces of coral themselves. The remaining portion of the oblong head beneath the coral rods has once been filled probably with coral, held in place by two pins, the holes for which still remain. Below the oblong is a vertical grooved bar, once containing coral, which connects it with a circular boss placed on the front of the bend; it is hollowed at the top, and has a hole at the centre for a pin to fasten the coral or other material which filled it. At the back of the oblong is a bronze rod, which turns abruptly, and turning again, is continued to form the bend of the pin. It expands where it turns into a bulbous form, on each side of which is a circular hollowed boss once filled with coral. I have suggested coral as the material which once occupied the several hollows, because the cylindrical rods on the top of the oblong are made of it, it is possible they may have been filled with vitreous paste, which is found in combination with coral on the pendant from the Queen's barrow at Arras.

Graves, but with a longer pin, was found in a cist with an unburnt body, at Craigie, near Dundee. *Proceedings of the Society of Antiquaries of Scotland*, xxxviii. 235, fig. 1. A contracted body was discovered in a cist at Moredun, near Gilmerton, Midlothian, with which were associated an iron circular penannular brooch, like that of the Danes Graves, an iron brooch of La Tène type, and an iron pin with a circular head and the top of the stem turned at a right angle to the head, making an elbow. This form of pin, which occurs made of bronze and ornamented, is not an early one, and has been found with Samian ware. *l.c.* xxxviii. 433, fig. 4. A brooch and pin, very similar to those from Moredun, formed part of the relics discovered in a broch at the Laws, Monifieth, Forfarshire. *l.c.* xvii. 301; xxxviii. 434, fig. 6.

The personal ornaments found in the graves were very few, and are confined to armlets and beads. Two armlets, made of bronze, have been discovered; one, once in the Ashmolean Museum at Oxford,[a] is $2\frac{3}{8}$ inches in diameter, and is made from a piece of thin wire, which expands slightly at each end, where the wire overlaps for $1\frac{3}{4}$ inch. It is smooth on the inner side, and is ornamented on

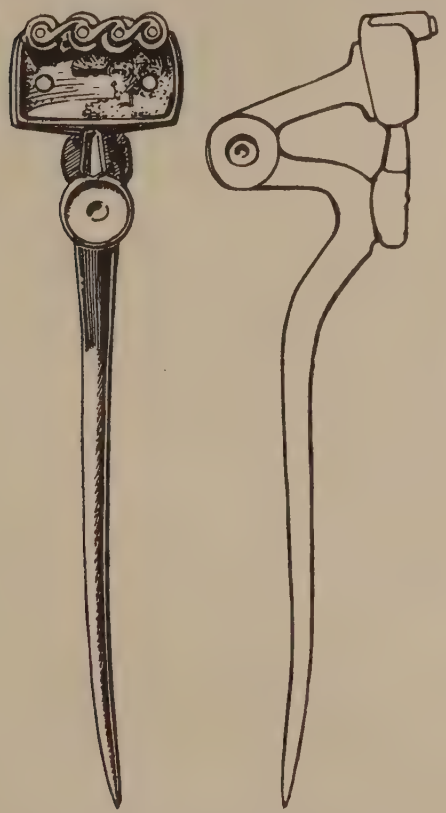


Fig. 18. Bronze pin with coral setting from the River Thames at Hammersmith. (½.)

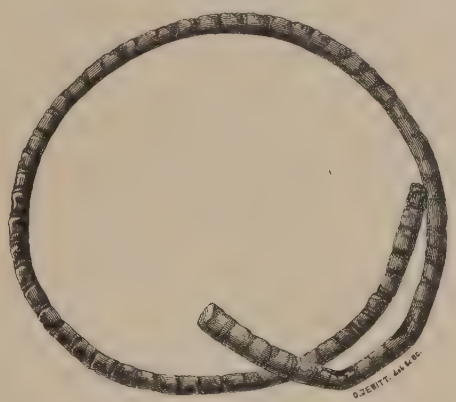


Fig. 19. Bronze armlet from the Danes Graves. (½.)

Fig. 20. Spindle whorl of chalk from the Danes Graves. (½.)

the outside by parallel, closely adjoining grooved lines in pairs, placed scarcely $\frac{1}{8}$ inch apart. (Fig. 19.) The other, found in one of the barrows opened in 1899, is described later on, where an account of the barrow is given. Two iron armlets, made of thin wire and quite plain, one on the wrist of a child, were the only

[a] It is described in the *Archæological Journal*, xvi. 83, where an engraving of it is given. The Society is indebted to the Royal Archæological Institute for the loan of the block (fig. 19).

other ornaments of the kind which were met with, except the broken pieces of an armlet of jet found in the same grave with the armlet once at Oxford. A small plain blue glass bead and some tubular beads of thin bronze are the only other articles of personal decoration which have occurred at the Danes Graves. In a grave which contained five interments one of the skeletons had on the arm some thin pieces of bronze, and another had the wrist-bones stained green from contact with some article of bronze which had gone to decay; each of these may have been an armlet of very delicate make. The remaining article to be noticed is a spindle whorl. It is roughly made of chalk, of a round form, $1\frac{1}{2}$ inch in diameter and just under 1 inch think, the hole being $\frac{1}{2}$ inch wide.[a] (Fig. 20.)

The nature of the interments at the cemetery of the Danes Graves seems to point to its having been the burial place of a community which was not possessed of much wealth of goods of any kind. With very few exceptions none of the bodies had anything associated with it beyond articles of a very humble description, and with far the greater number nothing had been buried. The vessels of pottery, too, were of a poor rude kind, and are not in any way equal in shape, fabric, or decoration to the vases found in the graves of the earlier Bronze Age people. A plain iron brooch, and that only in a few cases, was the sole fastener of the dress, besides the two bronze brooches. Nor, except in two graves, was there anything in the shape of ornament beyond a couple of iron armlets, one small glass bead, and a few ill-made beads of bronze.

The rudeness of the pottery of the Danes Graves has just been cited as a fact which indicates the poverty of the people who were buried there, and of the little advance they had made in the manufacture of one of the most necessary requirements of daily life. In reference to this incident it may be asked, Were the vessels found there those of ordinary use in the household, or were they specially made for sepulchral purposes, and therefore not representative of the domestic pottery of the people? If, however, they possessed vessels of better make, such as have been found elsewhere, it seems strange that among the material of the burial mounds, gathered up as it was, to some extent at least, from the surface of the ground on which they stood, there should not have been a single piece of such

[a] I am not acquainted with the occurrence of a spindle whorl with interments of the Bronze Age in Britain, though the process of weaving was well known to the people of that time. Spindle whorls are common on the site of the Swiss Lake Dwellings of the time of bronze. It is a frequent accompaniment of the burial of a woman in Anglian and Saxon cemeteries as the spear-head is of a man. In Bavaria, when property passed through male descent it was said in old legal language to pass through the spear-side, when by female descent through the spindle-side.

pottery lying about, to be lifted up with the turf of which to some extent the barrows were composed. This of course supposes that the cemetery was so closely associated with the village where they lived as to unite upon one site the homestead of the living and the graveyard of the dead. Whether this was so or not, and as much may be said on one side as on the other, I offer no opinion. That pottery of a much superior kind was made by the occupants of other parts of Britain there is abundant evidence to prove. The remains of numerous vessels which show a skilled hand in their manufacture, and no mean taste in their decoration, have been discovered at Hunsbury, Glastonbury, and many other centres of occupation, without taking into consideration the vases found at Aylesford, Shoebury, etc. associated with interments. It is possible, however, that the pots at the Danes Graves were made for purposes of burial, and were not such as were made for common domestic use. The vessels so frequently met with under similar circumstances in the barrows of the Bronze Age may perhaps have had their origin in the same sepulchral necessity.

In the absence of historical records it is difficult to assign even an approximate date to sepulchral or other remains which may exist in any country. This is made more difficult when the country is one like Britain, which has been subjected, it may be on several occasions, to the invasion and occupation of more than one immigrant people. This difficulty is encountered in regard to these cemeteries. Nor can they be considered as belonging to a single generation; they were in use during a period which may well cover two or three centuries, or even more.[a] It would be unsafe to assign any precise time for the beginning of this period, or any, except a somewhat uncertain one, for its close. That these burial places were not in use during any part of the time when bronze was the metal employed for weapons and implements is beyond question. They are the graves of a people who were acquainted with and who habitually used iron. As the advent of that metal into Britain may be placed between the third and second century before Christ, these cemeteries cannot be attributed to a time before that date, and they may not have been occupied until a later time than that. Whatever may have been the period when they were first used as a site for the burial of the dead, they appear to have served that purpose until after the beginning of our Era.

[a] It must be kept in mind that burial places of the dead and sites of occupation of the living may have been used for those purposes over a lengthened period, during which changes in the shape and material of manufactured articles had taken place. This has been too often disregarded, and in consequence weapons, implements, and ornaments which belonged to different times and peoples have been treated as if they were of one and the same time.

The absence of the buckle at the Danes Graves (nor was it found at Arras) is a fact of some importance when the question of the time during which that cemetery was in use is being considered. That form of fastening does not seem to have been known in the earlier stages of the cultivation which resulted from the introduction of the use of iron. The people of Hallstatt who were working the salt mines there during the period of the transition from bronze to iron and afterwards, when iron had entirely superseded the older metal, were unacquainted with it. Buckles do not occur at the Lake Dwelling of La Tène, so rich in relics of the Late Celtic Period, nor, indeed, in any site which can be assigned to the early years of that stage of progress. The buckle appears to have come in not long if at all before our Era, with the less civilised tribes, whether kindred or alien need not here be considered, who were beginning those inroads from the north which ultimately resulted in the overthrow of the Roman power. In those cases where a buckle has been found in Britain, associated with articles of personal or other use, those articles seem to belong to a time which dates more frequently after than to one before A.D. 1. It appears on the whole most probable that these cemeteries ceased to be employed when the district in which they are situated became a part of the Roman Empire, and subjected to its various influences. At neither cemetery, and the same was the case at Cowlam and other places where similar burials have been discovered, has anything been found which shows the slightest trace of Roman workmanship or civilisation, though the frequent finding of pavements, pottery, coins, and other things attests conclusively that the district in question was fully occupied by Roman soldiers and settlers.

A general account of the barrows at the Danes Graves and their contents having been given, together with a description of some of the more remarkable objects found associated with the interments, in order to complete the history of that cemetery, I propose to describe in detail the contents of those grave-mounds which seem to require it. In addition to, and in illustration of, the information afforded by the Danes Graves, it is desirable that an account should be supplied of what has been discovered in similar places of burial in the same district. I will therefore relate the incidents, so far as I have been able to collect them, connected with the burials of the Late-Celtic Period which have been brought to light at Arras and other sites on the Wolds and some near adjoining places, which have never yet been adequately described. To this will be added a few illustrative notices of discoveries made in cemeteries in France and elsewhere, which belong to a similar area of culture.

Although I propose giving a specific description of the contents of some of the barrows at Arras, it will be best, before doing so, to adopt the same course as has been taken in the case of the Danes Graves, by describing what was the nature and circumstances of the burials at Arras in their general aspect. It is unfortunate that the notes made by Mr. Stillingfleet, which have already been referred to, are very slight and not always clear, and also that the numerous articles found in the Arras and Hessleskew cemetery were scattered at the time of their discovery, and that many of them cannot now be recovered. There is, however, sufficient information in the notes, when supplemented by the remaining relics, to permit of a fairly satisfactory account being given.

The barrows there, as at the Danes Graves, were of small size, both in their height and circumference. There were a few large ones, but those, as is shown by their contents, belonged to an earlier time than that of the cemetery itself, and were undoubtedly barrows of the Bronze Age. Mr. Stillingfleet says nothing about a surrounding ditch, but as the land had been long under cultivation all trace of that would naturally have disappeared under the action of the plough. The burials were in most cases in graves sunk into the chalk rock, but many were laid on the surface of the rock, the excavation extending only through the overlying soil. The bodies, as a rule, were placed in the contracted position on the side; those which Mr. Stillingfleet describes as having their legs crossed and as lying on the back had probably been laid on the side when buried, that position having been disturbed by the falling in of the earth on the decay of the flesh. A few bodies, he says, were laid at full length. The head usually pointed to the north, a number, however, had the head to the south, but none seem to have been laid with the head to the east or west. There was a greater abundance of grave-goods than at the Danes Graves. Bronze armlets of various patterns, many beautifully made and ornamented, were frequent. In one case, Mr. Stillingfleet says, "one of the skeletons had a bracelet around the leg bone." This statement is no doubt correct, anklets having been found in some of the graves in Champagne, described by M. Morel. Another article of personal decoration, a bronze collar (*torques*), is said to have been found there. It is referred to in Mr. Stillingfleet's notes, and is mentioned in a letter of Dr. Hull of Beverley, now in the library of the Yorkshire Philosophical Society.[a] No representation or description of the

[a] Dr. Hull's letter, written October 2, 1827, says, "Some [skeletons] had rings of brass upon their arms, and one had a torques of brass round the neck." Mr. Stillingfleet states that the "torques" was 5½ inches in diameter.

collar has been preserved, nor is it known to be in existence. During the period covered by the Late-Celtic culture in Europe, collars for the neck of very varied design were abundant. They have, however, rarely been found in Britain, and never, so far as I know, with an interment, unless the account of the finding of a skeleton wearing a torc and associated with Roman objects at Dorchester, Dorset, be a case in point.[a] It is much to be regretted that no description of the Arras collar has been recorded.

There was a noticeable absence of dress-fasteners, and though, as regards brooches of a richer kind, the two cemeteries were about equal, the more ordinary brooches of iron, so common at the Danes Graves, were represented by a single specimen at Arras. Jet was present in the graves of both cemeteries; but amber, wanting at the Danes Graves, occurred twice, in the shape of a ring, at Arras. There was also there the rare occurrence of a ring of gold. Glass was found only in one barrow at the Danes Graves, and there in the shape of a single small plain bead. At Arras beads occurred in two graves, in one case there being a large number, all of them of fine quality and colour. Ornaments of bronze decorated with coral and vitreous paste were met with in about equal quantities in each cemetery. Three chariots were found at Arras and only one at the Danes Graves, and the equipment of those at Arras much exceeded in richness that of the chariot at the Danes Graves. Two mirrors were discovered at Arras; there was not one at the Danes Graves. Weapons and implements were equally absent from both places, with the exception of a spindle whorl, one of which occurred at each cemetery. The absence of pottery at Arras, where it is doubtful if any was found except some pieces of a cinerary urn of the Bronze Period, is a remarkable fact, when its frequency at the Danes Graves is considered. The corresponding scarceness at Arras of animal remains in association with the dead is equally difficult to account for.

I now proceed to give a detailed account of the phenomena disclosed by some of the graves at the Danes Graves and Arras which seem to require such a treatment. The barrow at the Danes Graves which impresses itself most strongly upon attention is that in which the chariot of the owner had been deposited with him in the grave. The mound under which he was buried was 27 feet in diameter and 3 feet high. Like the others, it was made up of mould with some chalk intermixed. The grave, oblong in shape, with rounded corners, was placed at the centre of the barrow, sunk to a depth of $2\frac{1}{2}$ feet through the surface soil

[a] *The Gentleman's Magazine*, September, 1841, p. 303.

into the chalk gravel. It had a direction north and south by east and west, and was 9 feet long and 7½ feet wide, being much above the ordinary size. Upon the bottom of the grave towards the east side two adult males had been interred in the usual contracted position, that towards the south end being the most so. The body at the north end, which was the larger of the two, was laid on the right side, the head pointing to south-west; the right hand was in front of the face, the left touching the right knee. Close to the left shoulder, some of them being upon it, were the bones of the head and forepart of a pig, including a tusk. Lying partly under the head of the man was a plain iron ring, 2 inches in diameter, and between the left elbow and the hip, but nearer to the latter, was an indeterminate article, partly made of iron, much eaten away by rust. Though it consisted principally of iron, there are remains of bronze, as well as of some white material, probably coral or shell, in its composition. In its present state it is irregular in shape, 1⅞ inch long, 1⅜ inch wide, and ¾ inch thick, with a groove along one side. At one end of the top is a round knob probably of coral, and the appearance suggests that originally there had been a similar knob at the other end. It may be the remains of a fastening for a waist belt. The other body, the crown of whose head was about 1 foot from the face of the first, was laid on the left side, with the head to north, the right hand being on the hips, the left in front of the face.

In the grave, and placed, like the bodies, on the bottom, were a number of articles, principally of iron, with some of bronze. That they had all belonged to a chariot and its equipment and to the harness and other furniture of the horses that drew it there can be no doubt. Close to the west side of the grave, each about a foot west of the respective bodies of the men, were the iron tires of two wheels, laid flat on the bottom of the grave. They differ a little in size; that which was placed towards the south end of the grave is 2 feet 6¾ inches wide, the other 2 feet 5¼ inches. They are flat, of the same width, 1½ inch, and about ¼ inch thick. At the centre of each tire were two thin iron hoops, those of the corresponding naves, laid overlapping each other. They are flat on the inner face and curved on the outer, and are 5½ inches in diameter, ⅝ inch wide, and ¼ inch thick. Within the southernmost tire, near to its edge, on the south-west side, was an iron article, no doubt a linch pin. It is curved in form, 8 inches along the curve and 6 inches across it, ½ inch thick, and made from a round bar. The head is square, 1½ inch wide, flat on the top, from which point it gradually tapers to the other end, where it terminates in a small knob. Another, precisely similar, was laid just outside the tire, on its north-east side. Still within the tire, almost touching it, on the south-west side, was an irregularly shaped curved article

of iron, which retains on its oxidised surface the impression of the wood into which it had been inserted. It is made out of a round bar, $3\frac{5}{8}$ inches long and $\frac{1}{4}$ inch thick; one end is flat and broad, $\frac{5}{8}$ inch wide, the other tapers almost to a point. On the east side, and still within the tire, was a small convex disk of thin bronze, 1 inch wide. It is pierced, the interstices being filled in with reddish coloured material, possibly vitreous paste, making a design somewhat like that of a Maltese cross. Within the northernmost tire, in addition to the two hoops of the nave, placed close to the east side, was a hollow ring of thin bronze, $2\frac{3}{4}$ inches in diameter. Four rings, from 2 inches to $2\frac{1}{2}$ inches in diameter, two of iron coated with bronze, and two made entirely of iron, were found, lying separate from each other, just outside the tire on the same side. Close to one of these rings, towards the north, was a circular disk of thin bronze, 2 inches wide. On the east side of the northernmost tire, laid close together, were two snaffle-bits. They are made of iron coated with bronze, of which metal only small portions are left; they are so much decayed and fragmentary that no exact description of them can be given; they appear, however, to be similar to those found at Arras, which are described later on.

I now propose to give an account of the contents of four barrows in the same locality as the Danes Graves, where remains of a chariot have been found.

The first was at Westwood, near Beverley, where there are a few small mounds, all probably of the same class, two of which I opened. In one nothing whatever was discovered, the bones, as was the case in the other grave, having entirely decayed away, and if any grave-goods had been deposited, they must all have been of a perishable nature. The other was 21 feet in diameter and 2 feet high, and had at the centre an oval grave, lying almost north and south, $6\frac{1}{4}$ feet long, $4\frac{1}{2}$ feet wide, and $2\frac{3}{4}$ feet deep. None of the bones of the body were left, the nature of the mould, with which the grave was filled, being such as I have always found to decompose the bones without leaving any visible trace of their former presence. About the middle of the grave, towards the east side, were the tires of two wheels, laid flat, side by side, each having within it a ring, the hoop of the respective naves. The tires are 2 feet $4\frac{1}{2}$ inches in diameter and $1\frac{3}{4}$ inch wide, the hoops of the naves, which are practically round, being $5\frac{1}{2}$ inches in diameter. On the west side of the grave were two snaffle-bits, too much decayed to allow any measurement or description being given. The whole of these parts of a chariot and harness were made of iron, of which metal there were other pieces, some apparently the remains of rings, but all so much decayed and imperfect as to render any attribution of their purpose quite impossible.

Three chariot-burials have been discovered at Arras and Hessleskew. Two were found by the Rev. E. W. Stillingfleet and others in 1816-1817, the third by workmen quarrying chalk in 1877. The description I am able to give of the two first is taken, partly from the notes made on the spot by Mr. Stillingfleet, now in the library of the York Philosophical Society, supplemented by a verbal explanation he gave to Dr. Thurnam,[a] and partly from the contents of the graves themselves, some of which are preserved in the Museum of the same Society. The description of the third is taken from the information given to me by the workmen who opened the grave, and from an examination I made of the grave, before it was destroyed, and of the soil and chalk which had been thrown out of it.

Fig. 21. Linch pin from the King's Barrow, Arras. (½)

The size of the first of the barrows at Arras, which had the name of King's Barrow attached to it by Mr. Stillingfleet, was, like all the others in the cemetery, quite small, being about 26 feet in diameter. It contained a nearly circular grave of rather large diameter, 11 feet or 12 feet, sunk through the overlying soil into the chalk rock to a depth of $1\frac{1}{2}$ foot. Within it on the bottom was placed the skeleton of an old man, laid on his back, the head pointing to north by east, the arms being crossed over the chest, "the thigh and leg bones appear to have been crossed in opposite directions," as Mr. Stillingfleet describes them.[b] Near the head of the man were the heads of two pigs.[c] On each side of the skeleton of the man was the iron tire of a wheel, of which some pieces of the wooden part still remained attached to the metal. Within each tire were placed the two hoops of the nave, made of iron coated with bronze. The tires, which are not quite flat, are 2 feet 11 inches in diameter and $1\frac{1}{2}$ inch broad; the nave hoops being $5\frac{3}{4}$ inches in diameter and $\frac{5}{8}$ inch broad, flat on the inner side, where the bronze

[a] *Crania Britannica*, vol. ii. under "Skull from Arras."

[b] The peculiar position which Mr. Stillingfleet describes was probably due to dislocation of the bones after the flesh had decayed, the body having been interred in the usual contracted form.

[c] It is possible that, as was the case in the third barrow at Arras, some other portions of the

coating does not quite meet, and curved on the outer side. Lying partly under each wheel was the skeleton of a horse, the head of each being placed not far from that of the man. They had been of unequal height, but both small, under thirteen hands. The leg bones were slender, which, perhaps, may indicate their being well bred. On the west side of the grave, near the ribs of the skeleton of the man, were two articles, certainly linch pins (Fig. 21); they are 5 inches long, and made of a round iron bar, $\frac{7}{8}$ inch wide, with a bronze termination at either end. That at the larger end is $1\frac{1}{8}$ inch long and has a flat circular top, $1\frac{1}{4}$ inch in diameter, with a neck beneath it, which swells into a round flat-bottomed bulb, with a bevelled band where it unites with the iron bar. The other end terminates in a curved

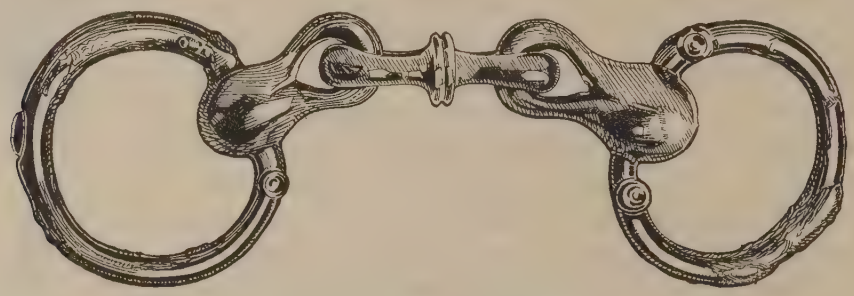


Fig. 22. Iron bit coated with bronze from the King's Barrow, Arras. ($\frac{1}{2}$.)

form, somewhat in shape like the hoof of a horse; it is $1\frac{1}{2}$ inch long with a flat circular end $\frac{3}{4}$ inch wide.[a] Also in the western part of the grave were two larger and two smaller rings (each $\frac{7}{8}$ inch wide), all of iron, plated with bronze. The two largest, one of which is imperfect, were no doubt connected with the harness. They consist of a straight flat bar of iron, which is prolonged into a curved form above, where it becomes round and bronze-coated. The upper part is ornamented, as is frequently the case in this kind of ring, with sets of double leaf-shaped and

pigs (" wild boars " Mr. Stillingfleet calls them) were there and not noted. In a sketch of the grave among Mr. Stillingfleet's papers the entire skeleton of the animals is represented, one on each side of that of the man.

[a] Among the various articles found at Stanwick in the North Riding, now in the British Museum, are six more or less perfect linch-pins, of two forms. One of them is very similar to that under notice, but has on the top a ring like those connected with harness, which have pairs of double, pointed oval, diverging projections upon them, it is perfect, $6\frac{3}{4}$ inches long, made of iron plated with bronze, and has upon it three pairs of projections. It is figured in the York volume of the Archæological Institute, plate iv. fig. 2, of Introduction, and in the *Catalogue of Antiquities at Alnwick Castle*, p. 89, fig. 3. (See Fig. 40, *post.*)

diverging projections, of which there are nine on the perfect, and seven on that which is imperfect through the loss of the flat iron bar; one is $2\frac{5}{8}$ inches wide, the other $2\frac{1}{2}$ inches. Still on the west side and near to the legs of the man were two bits. (Fig. 22.) They are made of iron coated with bronze, and are about 10 inches in their full length. At each end is a ring,[a] $5\frac{1}{4}$ inches in diameter, to which a bar, $2\frac{5}{8}$ inches long, is attached; this terminates in a loop which is linked on to another bar, shaped like the figure of 8, $2\frac{3}{4}$ inches long, which has a grooved rib at the middle, extending along its whole course. One of the rings has upon one side near to the bar two cup-shaped bosses, the ring at the other end having only one.[b]

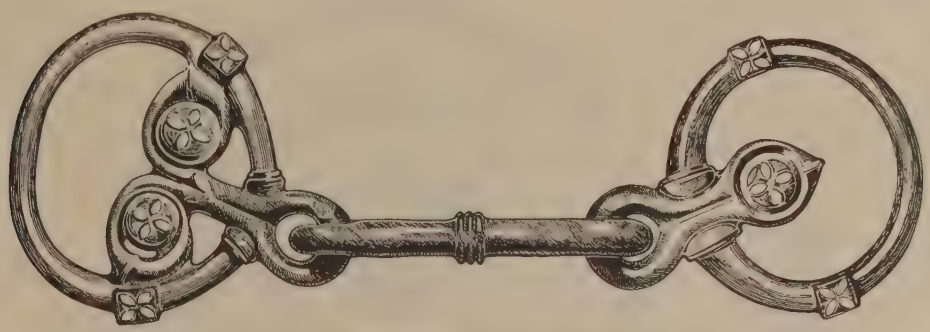


Fig. 23. Enamelled bronze bridle-bit from Rise, Holderness, now in the British Museum. ($\frac{1}{2}$.)

The second barrow, called the Charioteer's, was a very small one, being only 8 feet in diameter and not quite 2 feet high. The size of the grave has not been recorded, neither has the position of the body, except that the head was towards the north. It is stated that the skeleton was laid upon what was presumed to be, and which probably was, a shield. The size is not mentioned, nor are any further particulars given, except that a portion of what was supposed to be the rim, made of iron, 1 inch broad, still remained. Some bronze bosses, how many Mr. Stillingfleet did not remember, were also found; one of them, $4\frac{1}{2}$ inches in diameter, which had when discovered some wood attached to it, is now in the York Museum. (Fig. 24.) It consists of a round disk of thin bronze, $2\frac{1}{4}$ inches in diameter, embossed with a circular rib $\frac{5}{16}$ inch wide, enclosing a circular depression with a raised border. At

[a] Mr. Stillingfleet says, "and the rings had a very pretty chain pattern running round them." This pattern does not appear on the bit now in the York Museum.

[b] A bit of similar construction, but richly decorated, now in the British Museum, was found at Rise in Holderness, East Yorkshire. Nothing is known about the circumstances of its discovery. (Fig. 23.)

the centre of the depression is a mass of oxidised iron, suggesting the head of a rivet. The disk has been surrounded by a half tube of bronze to form a border, which had been fastened to the edge of the disk by two pairs of iron rivets, $\frac{1}{4}$ inch apart, which pass through the disk and the tube. These disks or bosses, as Mr. Stillingfleet calls them, were no doubt decorative parts of the shield, supposing there had been one in the grave.[a] On each side of the skeleton were the remains of a wheel, which it was thought had had sixteen spokes, set 6 inches apart.[b] The iron tires, slightly convex, are 2 feet $7\frac{1}{2}$ inches in diameter, and $1\frac{1}{2}$ inch wide. The hoops of the nave, made of iron, 6 inches in diameter and $\frac{7}{8}$ inch broad, are rounded on

Fig. 24. Bronze boss from the Charioteer's Barrow, Arras, now in the York Museum. ($\frac{2}{3}$.)

the outside and flat within, and have iron rivets to attach them to the wood of the nave, some of which was there when they were found. Near to each wheel was an iron bit now lost.[c] Laid upon the bones of the man were what Mr. Stillingfleet

[a] This is not the only instance on the Wolds where a shield had been buried with its owner. At Grimthorpe, in addition to a sword, spear, and other articles, the remains of a shield were found in the grave.

[b] Mr. Stillingfleet records in his notes, "The wheels had rested in an inclined direction (inclining from the body)."

[c] Mr. Stillingfleet says "they were much resembling the harsh snaffle-bit now used by our horsebreakers." One of these bits was found entire, with some other iron rings, which had probably been attached to the harness of the chariot; the other bit was injured by the workmen.

calls two boar's tusks, and a peculiar article of bronze.[a] One of the so-called tusks is preserved in the York Museum, and is made from the tine of a red deer's antler. It is curved in form, polished over the whole surface, with an ornamental band, $\frac{3}{4}$ inch wide, at the butt-end, which has a trellis-work pattern on it. It is 5 inches long, and at a distance of $\frac{7}{8}$ inch from the butt-end has a quadrangular perforation, $\frac{5}{16}$ inch by $\frac{4}{16}$ inch, which passes through from back to front.[b] (Fig. 25.) The bronze object, which was regarded by the finders as the case of the deer's horn tine, and by others as the end of the pole of the chariot, is a curious and enigmatical article. It consists of a straight half tube of thin metal, $4\frac{1}{2}$ inches long, at which point it turns upwards, forming a tube $1\frac{3}{8}$ inch wide, which rises to a height of $1\frac{3}{8}$ inch, expanding there into a flanged mouth, 2 inches wide, in the edge of which there have been at least fourteen rivet holes. On the inside of the lip of the mouth is a deposit of rust, the result probably of the oxidization of the iron rivets, which fixed something, which has perished, on to the mouth. A round-ended piece of bronze, which has a rivet hole through it, projects from the lower part of the tube. Upon the curve of the semicircular part, at a distance of 2 inches from the end, is an oxidised iron rivet, $\frac{1}{2}$ inch from which is a quadrangular hole, $\frac{5}{8}$ inch by $\frac{3}{8}$ inch. Close to the edge at the end on the top of the curve is an iron rivet, and on the edge of each side of the half tube are two rivet holes, $3\frac{5}{8}$ inches apart, in one of which the rivet still remains. (Fig. 26.) There were some other things in the grave of which the position has not been recorded. Among them is a bronze disk, ogee-shaped in section, $1\frac{1}{8}$ inch wide; the central part, $\frac{1}{2}$ inch wide, which is open, is capped by a three-legged dome, on the back of which is some

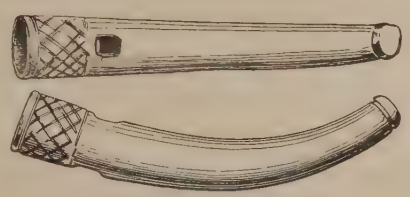


Fig. 25. Object of deer's horn from the Charioteer's Barrow, Arras. (About $\frac{1}{2}$ linear.)

[a] This is the account given by Mr. Stillingfleet to the meeting of the Archæological Institute at York in 1846, but in his original notes he says, "On the body of this charioteer had been placed two horns, one of which with part of its outer case of thin brass plate was found pretty entire, with the very hole (square) by which it had been suspended to the belt of the charioteer."

[b] There is some resemblance between this curved instrument and the similarly shaped ones of deer's horn, which have been found on the site of Lake Dwellings of the Bronze Age in Switzerland and elsewhere, and which have been regarded as the cheek pieces which, in connexion with a leather thong, formed a bridle-bit. The resemblance is, however, only a general one, and the absence of any perforation, except that at the base, seems to indicate that the two articles could not have answered the same purpose.

rust. (Fig. 27.) A complete ring, $1\frac{3}{8}$ inch in diameter, and several pieces of rings and some indeterminate fragments, including what may have been part of a linch pin, all of iron, were also found.

The third barrow, removed in 1877, was situated immediately south of the road from Market Weighton to Beverley. It was 14 feet wide and $1\frac{1}{2}$ foot high. The circular grave, 12 feet in diameter, was sunk 3 feet into the chalk rock. On the bottom, about the middle, was the skeleton of what competent anatomical

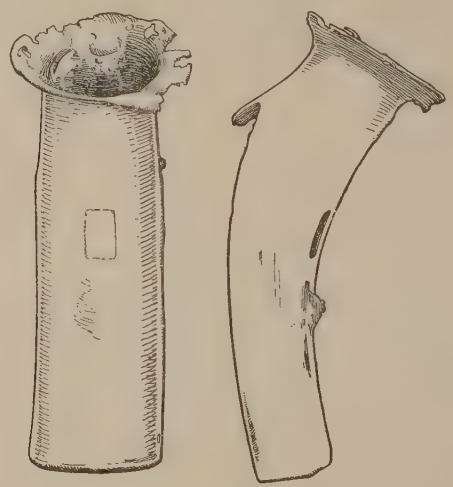


Fig. 26. Bronze object (2 views) from the Charioteer's Barrow, Arras. ($\frac{1}{2}$.)

Fig. 27. Bronze disk from the Charioteer's Barrow, Arras. ($\frac{1}{1}$.)

examination of the bones has declared to be of a woman.[a] The body had been laid on the left side, with the head to north, the left hand in front of the face.

According to the positive statement of the two workmen, who were intelligent and observant, the body was extended at full length, a position in which the body appears to have been placed in other barrows at Arras. Behind the head were the bones of the forepart of two pigs. Underneath the head of the woman was a mirror. Behind the back were the iron tires of two wheels laid partly the one over the other, and within each tire were two bronze hoops, those of the

[a] In a grave at Ciry-Salsogne (Aisne) the skeleton of a woman was found laid at full length on the back, and beyond the feet was the bit of a horse made of iron. There was also a bronze torque round the neck and an armlet of the same metal on the right wrist. A brooch had fastened the dress near the shoulder, and in addition to two earrings there was a profusion of ornaments about the chest. Seven vessels of pottery of elegant shapes and much decorated were placed round the body. Moreau, *Album Caranda* (1892), plate cxxxix. (Nouv. Série.)

corresponding naves, and a circular piece of iron. In front of the face were two bits laid slightly above the bottom of the grave. A small article of very thin bronze (now lost) was also found. It was in shape like a small round box lid, about 1 inch wide and the same deep. Opposite each other were two thin bronze pins to fasten it on to the wood, some of which was still there. It was no doubt, as the workmen suggested, the metal cover of the end of a whip shank. On

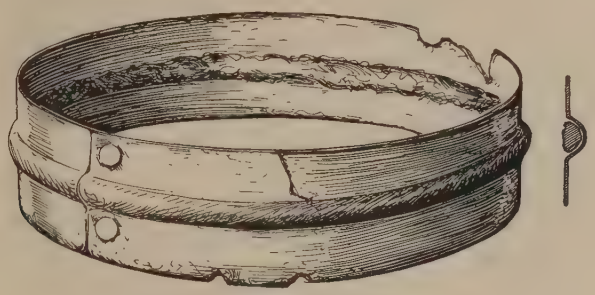


Fig. 28. Bronze and iron nave-hoop, chariot-burial, Arras. (½.)

turning over the filling in of the grave, which had been thrown out, I found a ring made of bronze and iron. The tires, which as is usual were made of iron, are slightly rounded on the outside, 2 feet 10 inches in diameter and $1\frac{3}{4}$ inch wide. The hoops of the naves, made of thin bronze, are $5\frac{1}{4}$ inches in diameter and $1\frac{3}{4}$ inch

Fig. 29. Bronze bridle-bit, chariot-burial, Arras. (½.)

wide; they have an embossed rib about the middle, and have been fastened on to the wood each by two rivets. (Fig. 28.) The bits are made of iron coated with bronze, and as they are in form almost the same as that already described from the King's Barrow, it is not necessary to describe them here. (Fig. 29). The ring is very similar to two found in the King's Barrow and noticed in the account just given of it. It is one of the class of rings connected with

harness, of which many have been discovered in various parts of Britain, some of them highly ornamented and decorated with enamel.[a] That in question is $2\frac{1}{4}$ inches wide, the same in height, $\frac{3}{8}$ inch thick, and has ten sets of the double leaf-shaped projections, which are found so often on this class of ring. (Fig. 30.) This ornamental addition is produced by a subtle and effective use of a principle in design, that of the returning spiral, which is so characteristic a component in the decorative work of the Late-Celtic Period. In no part of Europe is that well-marked feature of applied ornament so adequately represented as in Great Britain and Ireland, in which countries it reached its highest point of development, and where in later Christian times were produced those marvellous creations of artistic skill and exact and delicate training of eye and hand, the Book of Kells and the Lindisfarne Gospels.

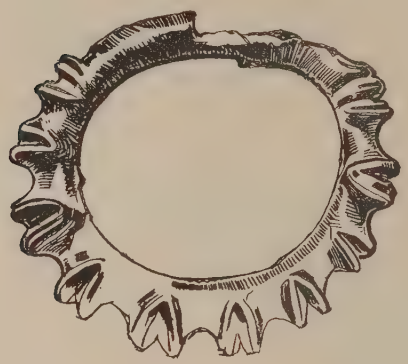


Fig. 30. Bronze and iron harness ring, Arras. (½)

The mirror consists of a thin circular plate of iron, $6\frac{7}{8}$ inches in diameter, with an iron handle, $6\frac{1}{8}$ inches long, which terminates in a ring of the same metal; the handle is decorated by two narrow bands of bronze, one of which encompasses it at each end. (Fig. 31.)

The manner of burial in this grave as well as in others at Arras was different from that universally adopted at the Danes Graves, where the bodies were all more or less contracted, a position in which they agree with the practice of their predecessors, the people of the Bronze Age. At Arras, on the contrary, some of the bodies were interred at full length.[b] Nor is this the only circumstance in which the two cemeteries do not agree. The absence of any vessels of pottery and of remains of food, presumably intended for the dead, and the much larger number of personal ornaments at Arras, are in strong contrast to what was the case at the Danes Graves, whatever the cause of that difference may have been.

When the practice of interring with the dead some of their possessions which

[a] See Kemble and Franks, *Horæ Ferales*, 196, plate xx. and *Proceedings of the Society of Antiquaries of London*, 2nd S. xx. 57.

[b] The extended mode of burial was that practised in Gaul, where the body appears to have been always laid at full length in the grave. In the large cemetery at Hallstatt, which, however, in the main belongs to an earlier period, the time of the transition from bronze to iron, the extended position was that in use.

they might be supposed to require in another life, is considered, it is not surprising

Fig. 31. Bronze-mounted iron mirror, from chariot-burial, Arras. ($\frac{1}{2}$.)

to find a chariot interred with its owner, occupying as it did so important a place

in the armament of the British tribes, and also at one time with those of Gaul.

Chariot burials have rarely been found in Britain, and their discovery has been almost entirely confined to Yorkshire. In that county by far the larger number has occurred on the Wolds and at places closely adjoining. One was discovered by the late Mr. Kendal of Pickering, near the Cawthorne Camps in the North Riding, of which the tires of the wheels and some other iron articles have been preserved. No record of the place nor of the circumstances of the find seems to have been made by Mr. Kendal, but Mr. Mortimer obtained some information from William Dawson, the foreman of Mr. Kendal's workmen. From what he remembered the whole chariot, including the pole, seems to have been buried. No bones either of man or horse were discovered.[a] This account tallies with what Mr. Kendal told me many years ago. At Stanwick, in the North Riding, a large number of objects of various kinds of bronze and iron were found in 1844. (Figs. 32 to 41). They included a sword of iron in its bronze sheath, rings connected with horse furniture, linch-pins, and bits for horses. It is reported they were found deposited in a pit, 5 feet deep. Iron hoops, apparently tires of wheels, are said to have occurred in close proximity. The account of the discovery is wanting in precision and is too vague to admit of any safe conclusion being arrived at, but it seems to be almost certain there had been a burial at the place, where a chariot had accompanied the interment.[b]

Some other problematical chariot burials are recorded by Mr. Mortimer. One was discovered about the year 1862, in a hole, sunk into the gravel, near the Seamer railway station, west of Scarborough. The remains of what were thought to be those of a small horse and cart were found.[c] Another is said to have been discovered by a farm labourer (John Gilbank) at Haywold, near Huggate-on-the-Wolds, when removing a barrow. The iron tires of two wheels and many bones were unearthed.[d] A third was discovered in 1888 in making a cutting on the Market Weighton and Driffield line, between Middleton and Enthorpe. In letting down some rock from the side of the cutting, a quantity of rusty iron and bones were observed. Some of the things found were saved by one of the navvies, but were all ultimately lost, except a linch-pin, of bronze and

[a] Mortimer, *Forty Years' Researches*, 361.

[b] York Volume of the Archæological Institute, Introduction, plates ii. iii. iv.

[c] Mortimer, *l.c.* 358.

[d] *l.c.* 359.

iron, which he gave to Mr. Mortimer. It is of a quite characteristic form, and is figured by Mr. Mortimer.[a]

Outside Yorkshire, so far as I know, there are only two places where a

Fig. 32. Bronze sword-sheath, Stanwick, Yorks. (L. 23 inches.)

Fig. 33. Embossed bronze, Stanwick. (L. 3·8 inch)

Fig. 36. Bronze bar of bridle-bit, Stanwick. (⅔.)

Fig 34. Bronze mount, Stanwick. (½)

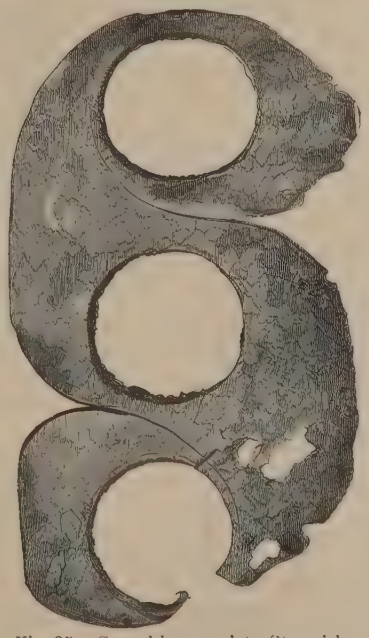


Fig. 35. Curved bronze plate, Stanwick. (L. 5⅛ inch.)

chariot-burial has been met with. One was within the camp at Hunsbury in Northamptonshire, where the skeleton of a man was discovered, with which were deposited part of the tire of a wheel and other pieces of iron, together with a

[a] *l.c.* p. 360, fig. 1022.

snaffle-bit, made partly of iron and partly of bronze.[a] The other was at Hamden Hill in Somersetshire, also within a camp, where human bones, skulls, spear-heads,

Fig. 38. Part of bridle-bit, Stanwick. (⅔.)

Fig. 37. Part of bronze mount, Stanwick. (¼)

Fig. 40. Bronze and iron linch-pin found at Stanwick. (⅔.)

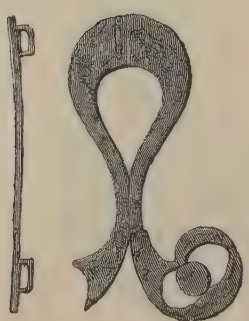


Fig. 39. Bronze open-work mount, Stanwick. (½.)

Fig. 41. ? Ring of a bit, Stanwick. (½.)

the tire of a wheel, a snaffle-bit, all of iron, and rings and other articles of bronze, were discovered in what seems to have been a cemetery.[b]

The bones of a man and horse and some remains of what was supposed to be the tire of a wheel, horse trappings, and a shield boss, all of iron, found in 1829 at

[a] *Associated Architectural Societies' Reports, etc.* xxi. 71.

[b] Letter from Sir Richard Colt Hoare, Bart. *Archaeologia*, xxi. 39 *seq.* plates v. vi.

Ballindalloch in Moray, were believed to have belonged to the interment of a man with his chariot. None of the things said to have been found are now extant, and the evidence as to their nature is by no means satisfactory.[a] This discovery cannot, therefore, be regarded as a case where a chariot had been deposited in a grave as part of the funeral equipment of the buried person, if, indeed, there had been any interment at the place.

There is no record of the discovery of a chariot or of any part of one in Ireland, though, judging by the frequent mention of it in early Irish story, it was in common use there in late Pagan times. Other articles, however, both warlike and domestic, belonging to the Late Celtic period, have been found there in abundance, many of them connected with horses and their trappings.

Burials where the chariot accompanied the body of the owner have been much more frequently found in France, principally in the north-eastern part, the department of La Marne and adjacent districts, as well as in the Côte-d'Or and Switzerland.[b]

[a] Wilson, *Prehistoric Annals of Scotland*, ii. 153.

[b] An account of the discovery of some chariot burials in France, where the circumstances of the burials are fully recorded and the articles deposited in the graves well illustrated by figures, will be found in M. Morel's work before cited. I have added a brief description of two other burials which will be of interest in connection with the Yorkshire instances.

A very remarkable interment where the remains of the chariot and the bits of the horses had been buried with the dead warrior occurred at Sesto Calende, at the south end of Lago Maggiore. The body, which had been burnt, was in a grave under a tumulus. In addition to the chariot there were associated with the interment a helmet and greaves made of bronze, an iron sword in a bronze sheath, the handle of which terminated in two antennæ, a spear-head and two arrow-points of iron, a bronze bucket ornamented with figures of horsemen and footmen, animals and birds, and some pottery painted in black and red. Montelius, *La civilisation prim. en Italie, Série B.*, pp. 317, 318, plate lxii.

A valuable discovery was made by M. Chauvet in Western France in 1883. Under a large earthen mound (38 métres in diameter), called Le Gros-Guignon (Savigné, Vienne), were two mounds of stone, each of which covered a place of burning. They stood north and south, and in the latter he found, together with the partially burnt bones of the buried person, a large number of articles connected with his equipment. The body had been placed between the two upright wheels of a chariot, near which were some horse bones. The various bronze and iron articles comprised two iron tires of wheels (3 centimétres wide), fragments of iron rings, probably of the naves of the wheels, bronze disks, bronze and iron nails, numerous other bronze and iron fragments, and two vessels of brown pottery. "Le Gros-Guignon," par Gustave Chauvet, *Bulletin de la Société Archéologique de la Charente* (1883), vi. 145.

Reference may be made to burials at Berru and Gorge-Meillet, both in the Department of La Marne, described respectively by A. Bertrand, *Archéologie Celtique et Gauloise* (ed. 1889), 356, and by E. Fourdrignier, *Double Sépulture Gauloise de la Gorge-Meillet.*

When a chariot is said to have been discovered, it must not be understood that the whole vehicle had been placed in the grave. That seems to have been the case only on rare occasions, the practice generally having been to deposit a part only as representing the whole, a well-known proceeding, and frequently occurring in many different relations. In the graves just described, with the exception of that in the King's Barrow, little, if anything, more than the wheels and axle appear to have been placed in the grave, and even in the King's Barrow, though there was, perhaps, space enough to contain the whole chariot and its appliances, there was an absence of many things which it might be thought were necessary to its completeness. In some of the barrows the grave was much too small to have admitted the entire chariot within its limits.

In a vehicle which was to be used in war, and over rough ground, in the way in which the chariot was manœuvred, lightness was no doubt an essential requirement, and therefore as little metal as possible would be employed. But strength was equally necessary, and it does not appear likely that the requisite stability could have been acquired without the use of metal bolts or other instruments for fastening the various parts, but such things have only been found on rare occasions. The position in which the wheels have usually been met with in the graves, laid flat on their sides, makes it certain they could not have been deposited there in their proper position, but must have been removed from it, a fact not consistent with the entire vehicle having been buried. In many of the chariot burials in France there can be no doubt that the whole chariot had been placed in the grave, the body of the owner having sometimes been laid upon it.[n] In some cases the wheels have been found in an upright position, kept in their place by having the lower part inserted into a groove cut in the rock for that purpose. In at least one instance a special provision had been made to receive the pole by cutting a groove, which extended beyond the limits of the grave itself. In addition to these provisions for the wheels and pole, many articles for fastening the various parts of the chariot were in that instance found in the positions they might be expected to occupy in that connection.

A parallel case to that of the wheels being buried as representing the chariot itself is afforded by the presence of the bits of the horses though the horses themselves are absent. This occurred at the Danes Graves, and in all the graves

[n] This occurred in a grave in the cemetery of Somme-Bionne (Marne), *Champagne Souterraine*, p. 23, plate vii. *seq.* M. Morel refers, at p. 28, to a similar discovery by M. Moreau at Fère-en-Tardenois.

at Arras except in that of the King's Barrow, the only one where, owing to the size of the grave, it was possible for the whole chariot to have been interred. The same practice prevailed in Gaul, where, though the horses have sometimes been found, in by far the larger number of burials there were only the bits to represent them.

In connexion with the chariot there is a circumstance which it may be desirable to refer to. It is a popular notion that the British chariots were provided with scythes fixed to the axle. No countenance is given to this belief by the remains of chariots which have been found in Britain, France, or elsewhere. It is true that the whole of the vehicle seems rarely to have been interred, but if a scythe had ever been attached to the axle it might be expected that it would have remained in connexion with the wheels, so many of which have been met with. The statement that the British chariots were provided with scythes is made only by Pomponius Mela[a] and Jornandes,[b] not any other author, who has written about Gaul or Britain, having said anything of such a practice. Had the Britons, at the time of Cæsar's expedition, been in the habit of using so important an addition to the chariot, it seems impossible he should have made no reference to it, for he describes the chariot and the way in which the Britons dealt with it in battle with more than ordinary attention to detail.[c] Moreover, in the account of the war in Pontus with Pharnaces, it is expressly mentioned that the chariots had scythes attached to them.[d]

In connexion with the third chariot-burial at Arras, a question arises of some interest in regard to the social condition of the people to whom that cemetery belonged. There can be no doubt that the person buried there was a woman; the evidence afforded by the nature of the bones, which indicate sex, is conclusive on that point, to which identification the presence of the mirror gives corroboration. Historical relation has thrown light on some features connected with the life and habits of the British people of the time, which has been illustrated in other ways. These indicate that the woman occupied an important place in their polity, not only in relation to the family but in a wider connexion,

[a] *De situ orbis*, liber iii. cap. viii. (London, 1719), 55.

[b] Cassiodori opera. Jornandes, *De rebus Geticis*, (Paris, 1588), 16.

[c] *De Bello Gallico*, liber iv. cap. 33. Some interesting notes on the subject will be found in a paper by Professor E. B. Tylor, F.R.S. "On the Origin of the Plough and Wheel Carriage," in the *Journal of the Anthropological Institute* (1881), x. 74, and to some remarks on the paper in the same volume, p. 127.

[d] *Bellum Alexandrinum*, cap. 75.

being at times even in the position of the ruling power. The names of Boadicea and Cartismandua (I use the ordinary and familiar spelling) suggest themselves. At a still earlier time the same social state appears to have prevailed in Britain. The graves of the Bronze Age, where a large burial mound has been found to cover the body of a woman as its primary and principal interment, show that in some cases a place of high distinction was allotted to a female member of the tribe.

The mirror is an article of personal use which has occasionally been discovered in Britain, almost always, however, made of bronze. In a few instances they have been found associated with an interment. In all these cases, except this in question and a second one of iron, also found at Arras but now lost,[a] they were made of bronze, and had the back in each case richly ornamented with designs characteristic of the decorative work of the period.[b]

[a] Mr. Stillingfleet's notes, which are accompanied by a rough sketch, state that the mirror was found with a skeleton in a small barrow, there being nothing else in the grave. He says they found "the round iron instrument, which we familiarly termed the oat cakes baker, from its resemblance to that culinary utensil. The shape of this instrument resembles the rough draft. It is like a modern hand screen. The diameter of the circulur part is about $7\frac{1}{4}$ inches. The length of the handle, including the perforation (a ring at the end of the handle and another where it joins the mirror), $5\frac{1}{2}$ inches. The iron is much corroded. The outer diameter of the two perforations $1\frac{1}{2}$ inches, the inner diameter about $\frac{3}{4}$ inch."

[b] As the number of burials where a mirror formed part of the grave-goods is small, I think it will not encumber this account if a brief notice of these very important discoveries is given.

At Trelan Bahow, in the parish of St. Keverne, Cornwall, some graves were found in 1833. They had a direction nearly east and west, and the excavation in each case was lined with flat stones set on edge and covered with similar flagstones. Nothing is said about bones, but the interments were presumably of unburnt bodies. In one grave, together with bronze rings, portions of brooches, beads, some of blue and others of black and grey streaked glass, and remains of much corroded and indeterminate objects of iron, there was deposited a bronze mirror, the back of which is ornamented over nearly the whole surface. *Archæological Journal*, xxx. 267, where there is a figure of the mirror.

At Mount Batten, Plymouth, several graves containing unburnt bodies were discovered in 1865. Among the various articles found in the graves were brooches, armlets, and rings of bronze, an iron dagger in a bronze sheath, other iron implements, portions of coloured lathe-turned pottery and of glass vessels, and a bronze mirror without its handle, and two handles apparently belonging to mirrors. The back of the mirror is decorated with a very characteristic Late Celtic pattern. *Archaeologia*, xi. 500.

The most valuable discovery was one made in 1879, near Birdlip, on the Cotswold Hills. There were three cists constructed of thin slabs of stone, placed in a line north and south. The two outer ones contained each the skeleton of an adult male with whose body nothing was associated. In the

The absence of a sword or of any other weapon at the Danes Graves and Arras,[a] which has already been noticed, is a very remarkable fact and one impossible to account for. In France the sword and spear are of frequent occurrence, and in some cases they have been found in graves where there was also a chariot. It is another example of the many differences that are found to exist in the interments of the time of iron, as there are also in those of the Bronze Age, and shows how impossible it is to predicate what may or what may not be found when a barrow is opened. It may be adduced as a reason, it is hoped a good and sufficient one, why the skilled investigation of these sepulchral mounds should be continued. An examination of any one of them may disclose important but hitherto unknown evidence in relation to our predecessors in Britain in the various phases of their life and habits.

Another of the barrows at Arras contained so many articles of interest that, although the record of its opening is not a very complete one, I propose to give a description of the contents of the grave as far as that is possible. It had the name of Queen's Barrow given to it by Mr. Stillingfleet. He makes no mention

middle one was deposited the skeleton of a woman who had died in the prime of life. Upon her face was laid a bowl, well made of hammered bronze, near which was a handle, probably belonging to it, while near by was a similar but smaller bowl. There were also in connexion with the body a silver brooch, coated with gold, which has a spiral head to the pin, a hollow penannular armlet and some rings all of bronze, two bronze handles, one of which had the head of an animal upon it, and a number of large rings, some 2 inches wide, made of red amber, jet, and dark grey marble. A very fine and perfect bronze mirror completed the grave-goods. It is beautifully ornamented on the back with a design of Late Celtic type. *Proceedings of the Bristol and Gloucestershire Archæological Society*, v. 137, plate xix.

The last discovery of a burial with a mirror, and not the least interesting one, was made outside the town but within the borough of Colchester, in 1904. With a burnt body in a grave, in addition to the mirror, which like all those of bronze was decorated on the back, was a small cup of the same metal, with an engraved handle, which had a small boss of red coral on it, and part of a bronze pin. The pottery was especially valuable; besides a pedestalled vase ornamented with belts, in which way most of the vessels were decorated, there were two large jugs with handles and a covered pot, both types new to Britain. All the vessels were well made. *Proceedings of the Society of Antiquaries of London*, 2nd S. xx. 213.

[a] Mr. Stillingfleet records in his notes the finding of two swords at Arras, but he does not state that they were discovered in connection with a burial. Somewhere within the limits of the Arras cemetery, he says: "Not many years ago were found the remains of two swords with brass handles and iron blades . . . . now unfortunately lost. . . . . In 1816 one of them was found and given to Dr. Hull of Beverley." It is possible that these swords were of the Late Celtic period, when bronze fittings to the handle are not infrequent. Had they been ordinary comparatively modern swords Mr. Stillingfleet would most likely have stated the fact.

of the size, except that it was not large and about 3 feet high. The grave was 1 foot deep, and contained a skeleton laid in a contracted position, with the head to north. Near the head and neck were about one hundred round glass beads,

Fig. 42. Necklace beads from the Queen's Barrow, Arras. (½.)

Fig. 43. Bronze and coral brooch (top and side views) from the Queen's Barrow, Arras. (½.)

from ¼ inch to ½ inch in diameter, the necklace of the buried woman. (Fig. 42.) The greater part are of two shades of blue, with annulets of white glass upon them,[a] which are in some cases three and in other cases fifteen in number; others have a zigzag pattern in white glass. The remaining beads, from ¼ inch to ⅝ inch in

[a] Similar beads of blue glass with white annulets upon them were found at Cowlam. *British Barrows*, 208. I am not aware that any like them have occurred accompanying an interment elsewhere in Britain. In the cemetery at Hallstatt there were many beads of the same blue colour with white annulets. Von Sacken, *Grabfeld von Hallstatt*, plate xviii. figs. 32, 37.

diameter, are of a clear greenish-coloured glass, with a zigzag in white glass. In front of the chest was an amber ring, $1\frac{5}{8}$ inch wide in its outer and $\frac{1}{2}$ inch in its inner diameter, and close by were a brooch and a pendent ornament.

The brooch is of unusual form and otherwise noteworthy. (Fig. 43.) It is slug-shaped, $2\frac{1}{2}$ inches long, the body being made of bronze and coral, with a pin of the same metal. The head of the pin is a ribbed bar, a survival of the spiral of the earlier form of brooch; it revolves between two rather large knobs of white material, probably coral[a] (one of which is wanting), riveted on with iron pins. The pin itself issues from two plain fillets, which have another, transversely grooved, placed between them; the three combined rise above the level of the bar and embrace it. Above the bar is a cylindrical rod of coral, 1 inch long, which has at the middle a knob of the same substance attached to it by a bronze rivet. The upper part of the body of the brooch, $1\frac{1}{4}$ inch long, is hollowed out along its length, the hollow being filled in with coral, which rises above the bronze in a curved form with a hump atop. The coral is held in its place by a transverse bronze rivet, which has on each side of it a pear-shaped hollow filled in with coral. The point of the pin lies in a sheath, formed at the end of the body of the brooch, which is turned back and terminates in a circular plate, upon which an egg-shaped boss of coral is fastened by a bronze rivet, which passing through the plate is fixed into the sheath. From the base of the central boss seven short cylindrical rods of coral (one of which is wanting) diverge to form a star-shaped termination, $1\frac{3}{8}$ inch wide, to the end of the brooch.[b]

[a] This white material, which also formed part of the Arras pendant and of the Danes Grave pin, has been examined by Professor Church, F.R.S., who has come to the conclusion that it is shell, though it may be coral. I have, however, as his opinion was not a decided one, called it coral, because, judging from the occurrence of that substance upon the metal work of the time, it was more likely to be coral. Upon this coral there is a deposit which has been regarded as a coating of silver. Professor Church says of it: "As to the coating on the white material of the brooch, it must be regarded as adventitious, and formed no part of the original structure. It is a subsequent deposit, and may be called 'epigene.' It contains iron and copper, chiefly as hydrated oxides. During the decay of the object it has been deposited from water with more or less regularity upon the white material."

[b] A star-shaped figure, suggesting the same motive, occurs on a brooch found in the cemetery of La grande Sérenne in the valley of Barcellonette. It is made of bronze and is fixed upon a circular disk which forms the termination of the reflected end of the bow. Chantre, *Premier Age du Fer*, plate x. figs. 1, 2. A somewhat similar brooch, with seven rays of coral on the foot plate, was found in a cemetery attributed to the second century B.C. at Uzès, Dépt. Gard. *Bulletin Archéologique*, 1897, p. 488. A bronze brooch (fig. 43), decorated with coral, which has a radiating pattern on the circular foot-plate, was found with a burial at Pleurs, Marne. Morel, *l. c.* Album, plate 27, fig. 3. Another similarly decorated was found in the same cemetery. (Fig. 44.)

The pendant is circular with a flat loop attached, the whole height being $2\frac{1}{2}$ inches and the width $1\frac{7}{8}$ inch. (Fig. 46.) The face of the circular part, which with the loop is made of bronze, is ornamented with three narrow concentric rings of coral enclosing a slightly convex disk of yellowish brown vitreous paste, 1 inch wide, fastened on by an iron rivet which does not pass through to the front of the disk. The back is apparently lathe-turned, having at the centre two narrow concentric circular ribs; at the back of the loop, beneath the hole for suspension, is a round-ended V-shaped plate of bronze, fastened on by three bronze rivets.

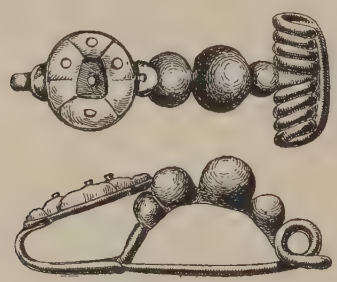


Fig. 44. Brooch ornamented with coral, Pleurs, Dépt. Marne. ($\frac{2}{3}$.)

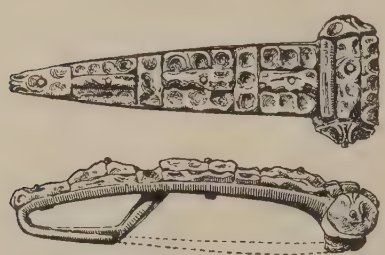


Fig. 45. Brooch ornamented with coral, Pleurs, Marne. ($\frac{2}{3}$.)

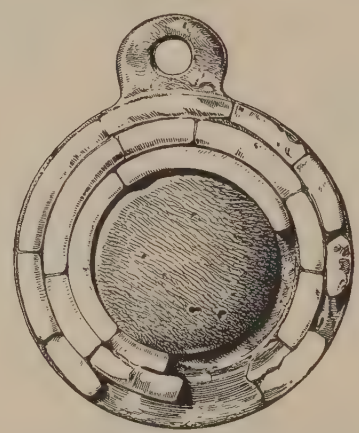


Fig. 46. Bronze pendant inlaid with coral and paste, from the Queen's Barrow, Arras. ($\frac{1}{1}$.)

According to Mr. Stillingfleet's notes, there were also found in the grave, their position not being further noted than that they were on the skeleton, "two bracelets, not a pair, of inferior workmanship, of the diameter of $2\frac{1}{2}$ inches, a small ring of scarcely 1 inch diameter, a pair of tweezers, and a pin of 2 inches in length with a ring at its end." The articles in the York Museum attributed to the Queen's Barrow illustrate and amplify Mr. Stillingfleet's account. In addition to the brooch, pendant, beads, etc. already described, there are a bronze armlet, $2\frac{1}{4}$ inches in diameter, made from a square bar twisted, and fastened by a mortice and tenon, which has a circular setting, now empty, close to the mortice (Fig. 47); an annular armlet, $2\frac{3}{8}$ inches in diameter, made of a plain round bar of iron, bronze

coated, having a ball upon it which contains three circular hollows filled with coral (Fig. 49); a penannular bronze armlet, $2\frac{1}{4}$ inches in diameter, with flattened circular ends; a penannular bronze ring, $\frac{7}{8}$ inch in diameter, with a moulded bronze bar, $2\frac{1}{8}$ inches long, suspended from it (Fig. 50); a round bronze rod, $2\frac{1}{4}$ inches long, ornamented with groups of three narrow grooved encircling lines, split at one end for about half its length, and having a movable ring upon it to tighten its grip, if it was a pair of tweezers; a bronze ring, $\frac{7}{8}$ inch in diameter (Fig. 48); and a fragment of a very small bronze ring.

A gold ring[a] (Fig. 51), which was exhibited at the York meeting of the

Figs. 47, 48. Bronze armlet and ring from the Queen's Barrow, Arras. (¼.)

Fig. 50. Ringed pin from the Queen's Barrow, Arras. (¼.)

Fig. 49. Bronze armlet from the Queen's Barrow, Arras. (¼.)

Archæological Institute in 1846, was found with the buried woman, but Mr. Stillingfleet does not mention its position in the grave. It was apparently not given by him, with the other relics, to the Museum, nor have I been able to trace where it is. It was of "very nearly standard gold, in weight 3 dwts. 21 grs. In front this ring is clasped in a kind of rose or quatrefoil."[b]

[a] A plain gold ring was found upon the right hand of a man who was buried with a chariot, in a grave at Somme Bionne. Morel, *l.c.* pp. 24, 33, plate ix. fig. 2. A bronze ring with an ornamented face was discovered in a grave at Mount Batten, Plymouth. *Archaeologia*, xi. 507, plate xxxi. fig. 4.

[b] Mr. Stillingfleet's notes, where there is a full-sized drawing, apparently an accurate one, of the ring.

Mr. Stillingfleet says an iron knob was found on the top of the grave, and that similar knobs were of frequent occurrence and "puzzled us much." They were no doubt nodules of pyrites of iron, which are often found on the surface of the ground, coming out of the decomposed chalk rock.

It will have been observed that the woman interred in the barrow just described was accompanied by a large number of glass beads. The bead, however, so common as a personal ornament in all ages, was, except in this case, almost entirely wanting at Arras. At the Danes Graves it was only in one of the last opened barrows in 1899 that a bead, a small plain one of dark blue glass, was found. As there were other decorative articles, some of them of a novel description, among the contents of this grave, I give herewith a short account of it. The

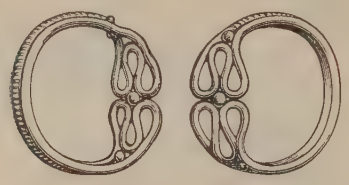


Fig. 51. Gold ring from the Queen's Barrow, Arras. (½.)

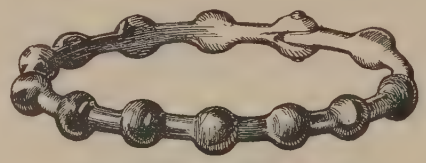


Fig. 52. Bronze armlet from the Danes Graves. (½.)

barrow was small, the grave being of the usual shape. The body, much contracted, had been laid on the left side, with the head to north north-west, both hands being up to the face. In front of the chest was some dark-coloured matter, the remains, probably, of cloth, among which were two small tubes of bronze and the bead already mentioned, the humble necklace of the buried woman. Upon the right wrist was a bronze armlet, 2 inches inside diameter, ornamented with thirteen equidistant round knobs.[a] (Fig. 52.) The tubes, about ¼ inch long, which probably served as beads, are made by turning over the edges of a thin piece of bronze so as to bring the sides together. Two similar tubes, of slightly larger size, were found in front of the chest of the body, together with an iron brooch, in another barrow opened at the same time.

[a] An armlet similar to this was found in one of the Arras barrows, but was given away, nor have I been able to trace it. Armlets of much the same pattern occurred in the cemetery of Somsois, Marne. Morel, *l.c.* Text, p. 89; Album, plate xvii. figs. 1, 5, 12; and in a grave at Pleurs: Morel, *l.c.* p. 117, plate xxvii. fig. 10.

The way in which this armlet is joined is somewhat peculiar. The one end, which is placed beneath a knob larger than the others, has been split horizontally, and into the opening thus made, the other end, which is flat and pointed, has been inserted and fixed there by an iron pin.

Mr. Stillingfleet and his fellow explorers were very fortunate in their first attempt, beginning as they did upon a barrow more than ordinarily rich in its contents, all of which are now unfortunately lost. "The first barrow" (I quote from Mr. Stillingfleet's notes) "which we opened was in the ground of Arras. In this we found a pretty perfect skeleton, with a couple of bracelets, a brooch, a ring which I should conclude to have been part of an ear ornament. The bracelets[a] were of different patterns and closed with a spring, the same as our modern bracelets, but wanted the swivel. Their inner diameter is almost $2\frac{1}{4}$ inches, and they have enclosed a circular ornament of stone or glass, which unfortunately we were unable to find. They are composed of brass painted a beautiful varnish green, and this was the style of all the ornaments we found." (The "varnish green" was of course the patina of green oxide so common upon ancient bronze articles.) The brooch" (evidently a very fine one, of which Mr. Stillingfleet gives an outline) "is an ornament of two parts, a parallelogram and a heart, united by a kind of bridge. A kind of composition has been included within the brass work, round, of about the size of a large rush, and three of these go over the bridge of the brooch.[b] It fastens with a tongue exactly like our modern brooches." It was $2\frac{7}{8}$ inches long, the width of the "parallelogram" and of the upper part of the "heart" being each 1 inch; the length of the "bridge" is 1 inch and its width just over $\frac{1}{2}$ inch.

In one of the early opened barrows on the Hessleskew farm were found "a torques or neck collar pretty entire . . . . a brass ornament similar to a little wheel,[c] a circumference with four radii, and the jet beads of one necklace." In the York Museum (labelled from a barrow at Hessleskew) are nine small round jet beads, which are no doubt those in question. Neither the brooch, "torques," nor the ornament like "a little wheel" are among the relics at York, not,

[a] Mr. Stillingfleet, speaking of the armlets found at Arras, and referring to those in his possession now in the York Museum, says, "We found several much finer bracelets, but they did not fall to my share."

[b] The ornamental addition to the bow of the brooch was probably composed of coral or vitreous paste, similar to the substance found on some of the brooches and pendant already described.

[c] The "little wheel" may have been the head of a pin similar to that found at the Danes Graves. In another note Mr. Stillingfleet says it was 1 inch in outer diameter and $\frac{5}{8}$ inch in inner diameter. A bronze article which looks as if it might be similar to the Arras "wheel" was found at Stanwick, and is figured in the *Catalogue of Antiquities at Alnwick Castle*, p. 90, fig. 15. A pin with a wheel-shaped head, but which has a straight shank, is figured in Wylde, *Catalogue of Bronze Antiquities in the Dublin Museum*, p. 559, fig. 422.

apparently, having fallen to Mr. Stillingfleet's share of what was found, nor have I been able to trace them.

In others of the barrows at Arras numerous articles of various kinds were discovered, many of which have disappeared. Some, which cannot, however, be assigned to any special barrow, are preserved in the York Museum and others in the British Museum, which I proceed to describe. They comprise two bronze armlets, a pair, $2\frac{3}{4}$ inches in inside and just under 3 inches in outside diameter; they are very similar in design, but not so delicately fashioned, as one of those found at Cowlam. There is one (Fig. 53) much like them, and another of a different pattern (Fig. 54), in the British Museum; where are also a small ring

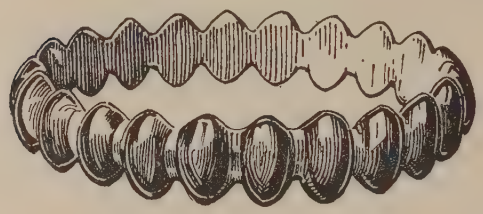


Fig. 53. Bronze armlet in the British Museum, from Arras. ($\frac{1}{1}$.)

Fig. 54. Bronze bracelet, Arras. ($\frac{1}{1}$.)

(Fig. 55), with annulets upon each face, a flat piece of lead, $1\frac{3}{4}$ inch long, with a bronze rivet through the middle, and a jet ring, $1\frac{1}{8}$ inch wide; they came from Arras, but it is not known if from the same barrow. The remaining articles are all at York. A bronze armlet, $2\frac{5}{8}$ inches in its outer diameter, fastened by a mortice and tenon; it has a cable moulding upon it and expands at each end into a flat circular plate, on to which a disk of paste or coral, now wanting, has been fixed by a rivet; from the same barrow came the half of a plain bronze armlet, $2\frac{1}{4}$ inches wide, which has at the remaining end a round plate similar to those on that last described, which is still filled with a setting of variegated red paste. Other barrows produced, either as the whole or a part only of their contents—one, a penannular bronze ring, about 1 inch in diameter, with overlapping ends, has a reeded pattern upon it. From another barrow came two plain bronze rings, $\frac{5}{8}$ inch and $\frac{6}{8}$ inch wide respectively. Among the rest is a truncated cone of chalk, perforated vertically, $1\frac{5}{8}$ inch high, the same width across the base, and $\frac{7}{8}$ inch across the top. (Fig. 56.) Though rather large, it is no doubt a spindle whorl; a round one, also made of chalk, has already been described from the Danes Graves.

Fig. 55. Bronze ring, Arras. ($\frac{1}{1}$.)

A most remarkable relic among those at York, one of great interest and very difficult to account for in connexion with a burial of the period to which the Arras cemetery belongs, is a miniature socketed and looped axe of bronze, 1 inch long. (Fig. 57.) It is said when found to have had "a pin which connected it when used with a small light blue glass bead."[a] Placed upon the same card in the York Museum on which the axe is fixed are the half of a jet bead, a piece of amber, a small blue glass bead, and a fragment of a bronze ring of thin wire. The two last-mentioned articles may possibly represent the pin and bead mentioned by Mr. Stillingfleet as having been attached to the axe.

Fig. 56. Chalk spindle whorl, from Arras. (½)

It is difficult to believe that at the time in question axes or any other implement of bronze were in use, for the burials at Arras belong undoubtedly to a period when the manufacture of iron and the cultivation with which that metal was associated had reached a high state of development. There were no signs in that cemetery of a change from bronze to iron, nor indeed does Britain afford any evidence of such a condition of things as is supplied by the graves at Hallstatt and by other places in Europe. It is probable, indeed almost certain, that the knowledge and use of iron came into Britain from a source oversea where it had already passed through the stage of transition, and had become the established metal for weapons and implements. This toy implement cannot therefore be regarded as having in its origin anything connected with the people who buried their dead at Arras. It belonged to a time about the date of which it is vain to speculate, when the ordinary cutting axe was made of bronze,

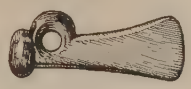


Fig. 57. Miniature bronze axe from Arras. (½.)

[a] Mr. Stillingfleet refers to the axe in two places in his notes. Speaking of four barrows opened June 2, 1815, he says "in one of them we found brass ornaments for the ears, painted green; one of them in my possession is a beautiful hatchet or British battle-axe in miniature, which has been ornamented and confined by a glass bead." In another and later part of his notes he says: "In W. 57 (the number refers to a plan which accompanies the notes) we found a skeleton and the beautiful miniature little axe ornament. I think also the little pellet ornament." This is probably what is figured in the notes 88, with the following description: "The outer shape of a brass ornament (probably appended to an earring) found in a barrow at Arras. It is formed of four brass or copper pellets." In another note Mr. Stillingfleet says it was ⅝ inch wide on the longest side of the square.

and in shape as well as in material a very different instrument from that used by the iron-equipped folk of the Wolds. For what purpose and in what relation it was first fabricated need not be inquired about. Representative weapons and implements are not uncommon in association with interments in Denmark, Egypt, and other countries, but I am not acquainted with the occurrence of such an article connected with a burial in Britain.[a] A suggestion may perhaps be hazarded about the cause of its being deposited in a grave at Arras. It was originally made during the Bronze Age, lost, and found many years afterwards, treasured as a curious thing, possibly worn as an ornament or charm, and in the end laid in the grave with the woman on whose neck it was hung when living.

There are two incidents connected with the burials at the Danes Graves which have not yet been brought under notice. The first has reference to the occurrence of animal remains in the barrows. The custom of placing in the grave in intimate connection with the buried person some portion of an animal, usually part of the foreleg of a young pig, has already been mentioned, but at the Danes Graves there were two instances where an entire animal had been deposited in the grave. One was in a barrow opened by me in 1864. It was small, and a grave of ordinary size had been excavated to a depth of 2 feet below the surface. On the bottom of the grave was laid the skeleton of an adult male, in a much contracted position, on the right side with the head to the west. On either side of the body was the skeleton of a full-grown goat, identified by the horn cores. Close to the mouth of the man, some of his teeth being discoloured by the oxidised metal, was an iron brooch.[b] The other instance was in one of the barrows opened in 1898. The barrow and grave were of the ordinary form and size. The body, that of an adult man, was placed at the middle of the grave in a slightly contracted position, on the right side with the head to the east. The arms were crossed over the stomach, and lying on the left humerus was an iron brooch. In front of the knees were the bones of a young pig, still higher up, and in front of the body were the bones of a goat. Over the feet and hips of the man was the skeleton of a very young pig, and behind his back were the bones of a second goat. Four animals therefore had been interred in this grave, two goats and two young pigs, a much larger provision for the dead, supposing they were deposited with that

[a] A miniature bronze axe was exhibited by Mr. Albert Way at the Worcester meeting of the Archæological Institute in 1862. There is no notice of it in the Journal of the Society, nor have I been able to learn anything about it.

[b] Engraved in *Archæological Journal*, xxii. 110.

intention, than was usually made. It is possible, however, that in these cases something more than such a provision was intended. I do not remember a similar instance having occurred among the burials of the Bronze Age.

The barrows at the Danes Graves contained as a rule each a single interment,[a] but seven, including that of the chariot burial, had more; in six there were two and in one five bodies buried in one grave, and apparently all placed there at the same time. In two of the barrows where there was a double interment, one of the bodies was of a child, and in that where the grave contained five bodies two were of children. In none of these cases, however, was there that intimate connection in the position of the bodies which has so frequently been found in the barrows of the Bronze Age, and from which an inference has been drawn, not perhaps unfairly, in regard to the relationship, as of mother and child, which existed between the buried persons.[b]

As the barrow which contained five interments possesses in addition to that unique characteristic some incidents which have an interest attached to them, I think it will be useful to give an account of its contents. It was larger than usual, being 30 feet in diameter and 3 feet high. The grave was of the usual form, $7\frac{1}{4}$ feet long, $5\frac{1}{2}$ feet wide, and $2\frac{1}{2}$ feet deep. Near to its southern end, placed just beneath the top of the grave, was the body of a child about seven years old, laid on the left side with the head to west-south-west, having the right arm across the body and the left hand under the head. Close to the right forearm was a broken and much corroded iron ring, probably the remains of an armlet. On the east side of the grave, about 1 foot above the bottom, was the body of a young adult male laid on the left side, but slightly turned over on to the back with the head to the north. The body was only loosely contracted, the right hand being laid on the right shoulder, the left hand under the head. Immediately underneath was another body placed on the bottom of the grave on the left side. The head pointed to the south, the right hand was up to the face, the left under the head. On the upper part of the right arm were some thin pieces of bronze very much corroded, and in front of the chest were remains of what may have been a bronze brooch. At the west side of the grave on the bottom was the loosely contracted body of an adult laid on the left side with the head to the north, the right arm was across the chest, the left hand in front of the face. The bones of the wrist of the right arm were stained green, indicating

[a] The same was the case at Arras. Mr. Stillingfleet says, "Each barrow we found to contain the skeleton of one human body."

[b] *British Barrows*, 156 note, 260, 309, 399.

that some bronze article, probably a thin armlet, had been once on the wrist. In the north-west corner a young child had been laid on the bottom of the grave, but the bones were too much decayed to allow of their position being determined. This barrow is the only one at the Danes Graves where anything like a number of bodies had been buried in one grave, nor was there anything to show that the barrow had ever been opened since the time when these bodies had been deposited in it. Nothing at all like it appears to have occurred at Arras, where, in that large cemetery, no barrow of the time of iron contained more than one interment. The rule in both these burial places was an almost universal one, that a sepulchral mound was the memorial over the grave of one person. This practice was a very different one from that of the people of the Bronze Age, where in the same barrow numerous interments have frequently been found, in many cases all certainly buried at one and the same time, although in others interments had been made at subsequent and different times.

It will have been remarked that in the barrow just described there were the bodies of two children, a very unusual occurrence. In addition to this there were only two other barrows at the Danes Graves where a child had been interred, making in all four children, a very small proportion out of the number of bodies there buried. Mr. Stillingfleet does not mention the discovery of the body of a child at Arras. It is certain that children must have died in much larger numbers during the time when these cemeteries were in use than is indicated by the small amount of bodies that were found. It appears therefore that children were not buried in them as a rule, but only on certain and special occasions. Into the cause of these very infrequent departures from the general custom it is in vain to inquire. In neither cemetery had a memorial mound been thrown up to commemorate the burial of a child, as in some instances had been done during the Bronze Age. One of the largest barrows on the Wolds was found to cover the body of a very young child as the primary and principal interment.

The account it was proposed to give of the two cemeteries has now been completed. It seems, however, desirable to supplement that by the addition of a few matters for consideration suggested by the subjects which have already been discussed. In this relation the two cemeteries may be treated as one, for though there are some differences between the articles discovered in the graves at the two sites, there is so much in common in their principal and more important features, that they must be regarded as burial places of people whose habits and manner of life were similar, and where the necessaries and appliances of daily existence were practically the same.

The first question which arises is that of the race or tribe who were buried at the Danes Graves and Arras, and to what division of the human family they belonged. In connexion with this a most essential, and perhaps the principal, factor is the physical characteristics of the skeletons themselves, and especially the general nature and distinctive racial elements of the skull form. For this investigation a quite sufficient amount of material is available, a large number of skeletons having been recovered in a state of preservation complete enough to admit of proper measurements being taken and of a thorough examination being made. This, however, does not apply to Arras, from which place only two skulls have been preserved. One of these is described and figured by Dr. Thurnam in *Crania Britannica*. The other is that of the woman of the chariot-burial now in the New Museum at Oxford. Some of the skeletons found by me in 1864 were described by Dr. Thurnam, but not with sufficient minuteness of detail, in the *Archæological Journal*.[a] The best preserved out of twenty-two skulls in the possession of Mr. Mortimer of Driffield have been reported on by William Wright, M.B., F.R.C.S., in the *Journal of the Anthropological Institute*.[b]

A further examination of all the available skulls has been made by Dr. Wright, now F.S.A., to whom the Society is indebted for the account appended to this paper.

It would not be prudent to insist too strongly upon the similarity of the grave-relics at the Danes Graves and Arras with those discovered in other parts of Britain, or in countries oversea, as being proof that the two belonged to the same race of people or even to the same area of cultivation. The apparatus of war, the instruments and luxuries of ordinary life, even rites of burial, have so often been taken over by one people from others, where there was no relationship by blood that it would be unwise to argue in favour of identity of race upon this basis alone. But on the other hand, unless the evidence to the contrary is abundant and trustworthy, where such things as have just been referred to are found to be similar in two districts, the presumption is strong that they were in the main occupied by people who were united by the affinity of blood. If this argument may be considered a valid one, then the tribe who dwelt in that part of Yorkshire, where these cemeteries are situated, may be regarded as kinsmen of that family of Celts who occupied the north-eastern and adjacent part of Gaul, as they were related to some sections of the population of Britain itself.

When we endeavour, and we can scarcely avoid doing so, to form a picture of what may have been the domestic and social condition of these people, their habits

[a] Vol. xxii. 109.

[b] N. S. vi. 66-73.

of daily life, their occupations and industries, we are met by the serious difficulty which is caused by the small amount of material, and that too of a somewhat contradictory nature, which is at our disposal. And there are other difficulties. The quality of the vessels of pottery, which has already been discussed, is so bad that it would be despised by many a tribe of savages, and yet the same graves have produced other things so excellent that an educated and practised artificer would regard them as not unworthy of his power. Some of these articles show great skill in manufacture as well as artistic capability in decorative work, where instructed and well-trained labour has been bestowed. The inference which might be drawn from this, as showing their advance in the processes which are developed from the cultured hands and brain of the craftsman, requires to be qualified, at least to some extent. The bronze brooches, the pin, the pendant, and some other things, which exhibit the high qualities just referred to, may have been imported into Britain from foreign parts, and may, therefore, not be due to native workmen. Intercourse by way of traffic was then widely spread, and goods passed by one channel and another through divers routes, and the products of one land were the frequent possession of the people of another. It may not be possible, it is true, to attribute to any special place the source from which the ornaments in question may have come, nevertheless it seems on the whole most likely that they were foreign to Yorkshire, and were not made by the people with whose burial places we are concerned. At the same time, even if we regard these luxuries as not being of home manufacture, the fact that they were imported, used, and appreciated implies in itself no small advance in cultivation and in the attendant elevation of social life and its surroundings.

The people at the Danes Graves do not appear to have been in possession of so much wealth of goods as their kinsmen at Arras, though there, probably, was no great difference between them in the ordinary conditions of their life. Both communities appear to have advanced to the same stage of progress as had been attained by the inhabitants of large portions of Britain, and by many of the allied Gaulish tribes, with whom, through the requirements of trade, community of interests, and relationship, intercourse was habitually kept up.

The resemblance between the articles found in these graves of the East Riding and the contents of burial places of people living at the same time in other localities in Britain and oversea in Europe, is a subject in general of great interest and value. It becomes one of still higher importance when the development in Britain, which accompanied the displacement of bronze by iron, is in question. The inquiry is one too large to be investigated in this account, the

principal object of which is to put on record the discoveries made in these cemeteries, in order that they may be used in a wider connection than is here sought to be discussed.

The rare occurrence of chariot-burials, confined, as it is, to a very limited area in Britain, is a matter about which it seems necessary to make some remarks. It is true that, as regards Britain in general, but few burial places of the Iron Age have been found which can be attributed with certainty to a time before the Roman occupation. They are less frequent in Scotland and the adjoining country south of Tweed. Indeed, with the exception of the district in Yorkshire with which we are concerned and the south-east corner of England, it is only here and there that an interment of the period in question has been discovered. It could scarcely then be looked for that many cases, where a chariot was associated with the dead person in the grave, should have been met with. Such burials are, however, comparatively abundant in the district where these cemeteries are situated, nor is there any apparent cause why they should occur there more commonly than they do in any other part of Britain. The circumstance, singular and interesting as it is, cannot I fear be explained.

It is evident from the account given by Cæsar of his campaign against the South-eastern Britons that the chariot formed an important and effective element in their military equipment and tactics. That there was a large employment of the chariot in other parts of Britain is shown by the numerous discoveries of articles connected with horse trappings and harness which have been made throughout almost the whole country. It might, therefore, have been expected that when the chariot was in such common use, burials would have taken place, in which it formed part of the funeral goods, equally in other parts as it did in the district in question, but that has not proved to be the case. As has just been stated, except in East Yorkshire such burials are all but unknown.

The absence of the sword, spear, or any other weapon is another circumstance which cannot be accounted for, and the absence is more difficult to understand when the large number of graves which were examined is taken into account. The numerous discoveries of these weapons which have been made in different parts of the country, many of them in connection with an interment, show that they were abundantly used by the Britons. Indeed at a not very distant place on the Wolds a grave was discovered, in which with the skeleton of a man were associated a sword and spear with other things, at another place two swords were found in the grave, and it is possible that the sword discovered at Thorp, near Rudstone, had accompanied an interment. It is possible, though it is very

unlikely, that this absence was accidental. Among the many interments which had taken place at the Danes Graves and Arras there must at least have been one of a man who owned both sword and spear.

There was also in the cemeteries an absence of any ornamental or other article into whose composition enamel had entered. This fact, like others that have already been noticed, has a significance which is of importance in relation to the time when they were occupied as places of interment. Of all the materials employed for decorative purposes, there was none which exhibited such effective and characteristic features in the native bronze work of the period as enamel. How constantly it was used and how largely applied in the manufacture of many different instruments and ornaments is evident from the abundance of various objects, many very richly decorated with it, which are amongst the choicest treasures of our museums. At whatever period the use of enamel commenced in Britain, where, as is believed on good grounds, it originated, its application as a decorative material belongs to the time of the highest developement of the Late Celtic cultivation. If that is true, there is a strong probability that the two cemeteries belong to an earlier phase of that remarkable culture, for not the slightest trace of enamel was found either at the Danes Graves or at Arras. The non-appearance of any article of Roman manufacture or of any signs of Roman influence may be adduced as adding some strength to the conclusion, already arrived at, with regard to the time when these burial places were in occupation.

The occurrence of plain iron mirrors at Arras, while none of bronze were discovered, may, perhaps, be regarded as an incident to some extent parallel to the absence of anything upon which enamel had been employed, and one favourable to an early date being assigned to these Yorkshire cemeteries. In a few instances in Britain, a bronze mirror, which in every case was richly decorated on the back, has been found associated with an interment. The other grave-goods which were deposited in these burial places have been such as belong to a late period of the cultivation in question. This is corroborated by the circumstances which have attended the discovery of bronze mirrors unconnected with sepulture. If the burials at Arras, which were accompanied by a mirror, had belonged to the highest developement of the Early Iron time, we might have looked for the occurrence of a mirror made of bronze and enriched with the decoration which is always found upon those articles of the toilet. These facts are certainly not conclusive, but in the absence of more satisfactory evidence they may, perhaps, be offered as suggestive.

POSTSCRIPT.

Since the preceding pages have passed through the press, a valuable discovery of a chariot-burial has been made on the north-eastern verge of the Wolds, about twelve miles north of the Danes Graves. It occurred near Hunmanby, and was accidentally disclosed by the falling in of gravel overlying a clay pit. There still remained some indications of the mound which had been thrown up over the grave. The grave itself was $3\frac{1}{2}$ feet deep and $11\frac{1}{2}$ feet in diameter, with slightly sloping sides. The various articles found were partly among the material which had fallen in and partly in the portion of the grave which remained undisturbed. Nothing belonging to the skeleton of the buried person was met with, but a piece of bone and two much-decayed teeth of a horse were found.

Numerous articles of bronze and iron came to light, many of which can be identified, but others were too fragmentary and decayed to admit of their original purpose being ascertained. Among those, the use of which is evident, are the broken tires of two wheels. They had been nearly 3 feet in diameter and over 1 inch wide, slightly turned over at the edge. From the position in which they were found, they appeared to have been attached to the body of the chariot, and not deposited, as was sometimes the case, merely as detached wheels. The nave-hoops, about 6 inches in diameter, were also present, but in a broken condition, though of thicker fabric than the tires. To both tires and nave hoops portions of wood were still attached. Two large curved articles of iron are probably linch-pins. Other indeterminate pieces of iron may have been connected with the chariot. A single bit was found. It is stated to be made of bronze, but is, no doubt, like many others which have occurred elsewhere, of iron bronze-coated. It is quite similar in size, general form and construction, to those found at Arras, two of which are represented in the foregoing account. (Figs. 22, 29.) In all other cases two bits have occurred, as was to be expected when the chariot was drawn by two horses. In this case it does not appear likely that so large an object could have been overlooked by the explorers, but as a portion of the grave had fallen in before it was examined, another bit may have been carried off by some one visiting the place. It is possible, however, that in this instance a single bit was deposited in place of the pair, just as in other cases the bits and the wheels were thought sufficient to represent the chariot itself and the horses that drew it.

There was nothing to show that any offensive weapon had been deposited in the grave, certainly there had been no sword, and among the various portions of bronze and iron articles none indicated the presence of a spear. The remains of an important defensive weapon were found in numerous fragmentary parts of a shield. From what was left of the wooden foundation it must have been more than 2 feet long, with straight sides and rounded ends, one of which was left, and in shape much like the shields from the rivers Thames and Witham now in the British Museum. The wood had been partly covered with thin plates of bronze, some of which remained, but in a fragile and decayed condition. They had been fixed by bronze pins. Though little of this bronze coating was preserved, enough was left to show that it had been ornamented with a characteristic Late-Celtic pattern in embossed work.

The wood of the shield had been bordered by a bronze rim, $\frac{3}{4}$ inch wide, which had been turned over the edge on to the inner side to the same width, and fastened by bronze pins $\frac{1}{4}$ inch long. A flattened tube of thin bronze about 6 inches long, which was found lying across one end of the shield may have been connected with its metal covering. It will be remembered that in a grave at Grimthorpe, on the north-western verge of the Wolds, the body of a man was discovered, with whom, in addition to an iron sword in a bronze sheath and an iron spear-head, a shield (Fig. 6) had been buried. Part of the bronze covering of that shield consisted of two semi-cylindrical rods, and it is possible that the tube found in the grave at Hunmanby may have had a similar use.

It remains to notice "a thin lenticular piece of plain bronze, measuring about 3 inches by $2\frac{1}{2}$ inches, which is polished on the convex side." It had at the edge a bronze pin for attachment to something which had perished. It has been suggested that it was part of a mirror, but that does not seem to be probable.

The position in which the wheels were found, and the various articles of bronze and iron probably connected with the construction of the chariot, as well as the remains, small though they are, of the horses, all seem to point to the conclusion that the chariot itself and the horses belonging to it had been interred in the grave.

This important discovery adds one more instance to those already numerous in proportion to other districts where a chariot burial has been found on the Wolds or in their immediate proximity.

APPENDIX.

Notes on the human remains found in the Danes Graves. By WILLIAM WRIGHT, *Esq., M.B., D.Sc., F.R.C.S., F.S.A.*

Of the former inhabitants of Yorkshire who were buried in "the Danes Graves" I have been able to examine in addition to a number of long bones no less than sixty skulls. So large a number of prehistoric skulls from so small an area is most unusual, and permits one to generalise with much more confidence than is ordinarily the case.

The skulls are widely scattered now; they are to be found in the Mortimer Museum, Driffield, the Museum of the Yorkshire Philosophical Society at York, the University Museums of Cambridge and Oxford, and the Museum of the Royal College of Surgeons in London.

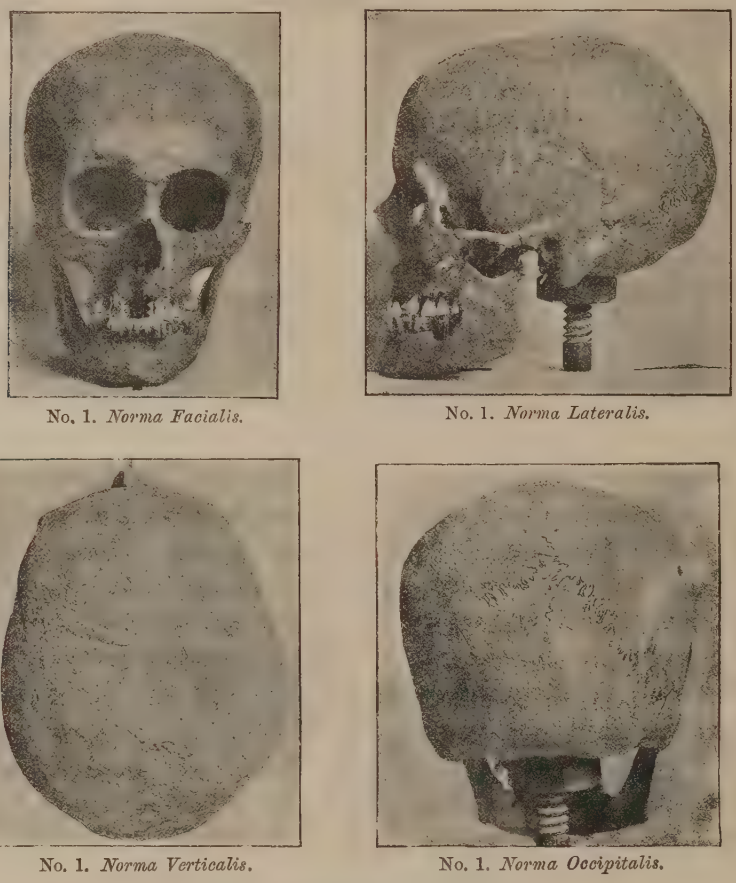
Of the twenty-five in the Mortimer Museum which I have examined I have already published a description of twenty-two,[a] the remainder were obtained by Mr. Mortimer and myself subsequent to the date of that communication. In the York Museum there are two skulls from these graves, at Cambridge and Oxford four and ten respectively, and in the Royal College of Surgeons nineteen.

In the paper contributed to the *Journal of the Anthropological Institute* I concluded that the skulls could be assigned to one or other of five types, illustrations of four of which I am permitted to reproduce. (Fig. 58 and Plate XXX.) A more extensive examination of the skulls from these graves and a deeper study of craniology confirm that conclusion, but I am compelled to acknowledge that the types are not sharply defined and all gradations between them are to be observed. Further, the types are not far removed from each other, and all the skulls may be said to lie, in their shape, somewhere between No. 1 and No. 18. Here too it must be borne in mind that much of the difference can be attributed to sex, for No. 1 is the skull of a woman while No. 18 belonged to a man. Sex for instance

[a] *Journal of the Anthropological Institute*, N. S. vi. (1903), 66-71.

readily accounts for the more vertical forehead of No. 1 and for the prominence of the frontal, parietal, and occipital eminences which occasion its pentagonoid appearance when viewed in the Norma Verticalis.[a]

The skulls form a series as uniform as one can expect in Europe, as uniform as that from the Neolithic Barrows of England.



No. 1. *Norma Facialis.* No. 1. *Norma Lateralis.*

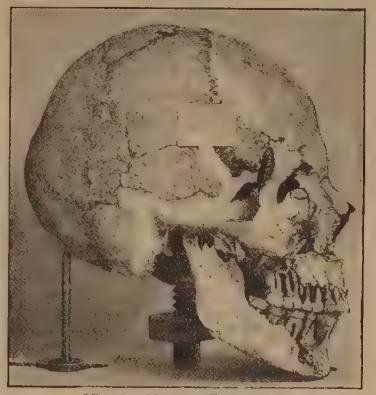
No. 1. *Norma Verticalis.* No. 1. *Norma Occipitalis.*

Fig. 58. Skull from the Danes Graves.

The importance of this fact lies in its suggestion, apart from all archæological evidence, that the skulls belonged to individuals living in tribal fashion.

[a] The skulls are all photographed with the lower border of the orbit, and the upper border of the external auditory meatus in the same horizontal plane, that is in the position recommended at the Frankfort Congress.

No. 8. *Norma Facialis.*

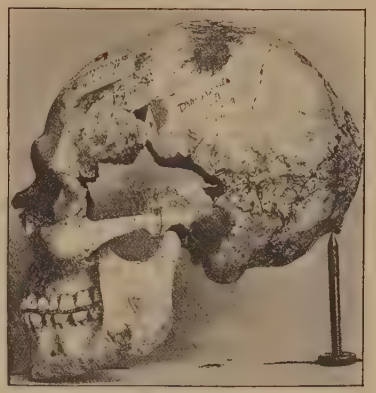


No. 8. *Norma Lateralis.*

No. 8. *Norma Verticalis.*

No. 8. *Norma Occipitalis.*

No. 18. *Norma Facialis.*

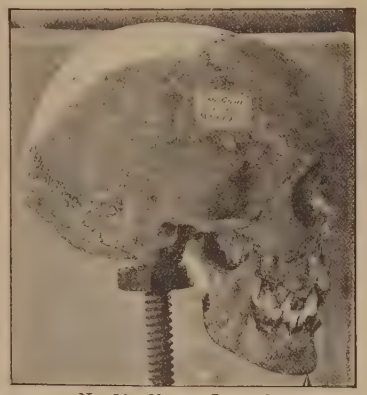


No. 18. *Norma Lateralis.*

No. 18. *Norma Verticalis.*

No. 18. *Norma Occipitalis.*

No. 21. *Norma Facialis.*



No. 21. *Norma Lateralis.*

No. 21. *Norma Verticalis.*

No. 21. *Norma Occipitalis.*

SKULLS FROM THE DANES GRAVES.

Published by the Society of Antiquaries of London, 1906.

The skulls may be described as seen in the Normæ Verticalis, Lateralis, Facialis et Occipitalis.

Norma Verticalis.—In this Norma the cranium[a] hides the face, the zygomata are not seen. The shapes occurring are the ellipsoid[b] and ovoid, occasionally a slight tendency is observed to the pentagonoid or beloid. The minimum frontal diameter is in a few instances strikingly small.

Norma Lateralis.—All the crania are long and the vast majority possess the ellipsoid shape. The regularity of the curve is in most cases broken by supraciliary, frontal, or occipital eminences, by a flatness in the posterior parietal or superior occipital regions, by the flatness or external concavity of the inferior occipital squame. The latter condition when combined with a prominence of the superior occipital squame gives an appearance which has been well compared by Sergi[c] to the blunt beak of a bird. It is seen in No. 1 and No. 21.

The supraciliary eminences are not as a rule well developed, those of No. 18 being unusually pronounced for these skulls.

The other irregularities of the curve give to the cranium an ill-filled appearance, but it would be wrong to argue therefrom a condition of low intellectuality; since long skulls are prone to such an appearance from the fact that undue enlargement of one diameter, such as the anteroposterior, interferes with that regularly rounded appearance which results when enlargement takes place more or less equally along the three dimensions of space.

As to the profile view of the face, the nose will be seen to project well forwards, the upper part being concave upwards and forwards, the lower part showing the beginning of a convexity. It is unfortunate that the bony portion of the nose is so small that one is unable to form an adequate idea of the shape of the nose in life. It will also

[a] The skulls are all photographed with the lower border of the orbit, and the upper border of the external auditory meatus in the same horizontal plane, that is in the position recommended at the Frankfort Congress.

[b] Sergi, *Specie e Varietà Umane*, 1900.

[c] Sergi, *Nuove osservazioni sulle forme del cranio umano.*

be seen from the illustrations that the face bones are slight, and the mastoid processes and osseous asperities for the attachment of muscles poorly developed. While no skull was observed to be prognathous, some exhibited a greater approach to that condition than did others.

Norma Facialis.—The predominant shape is ellipsoid; in other words the lateral surface of the cranium, the zygoma, and ascending ramus of the mandible are almost in the same vertical plane, the arch of the cranium and body of mandible completing the figure above and below. The chief variation from this is the ovoid type, an example of which is shown in No. 1, the vertex is wide and the outline gradually tapers towards the chin, which, however, is rounded; the type is confined to females.

The face is seen to be large, particularly in its vertical diameter.

The cheek bones are not unduly prominent, although probably a few, as for example No. 18, would have had them sufficiently pronounced to affect the surface form.

Rarely is the lower jaw squared; in a few instances, if the soft parts closely followed the underlying bone, the chin was dimpled.

The temporal ridges are in many cases sufficiently developed for them to be recognized in life through the skin and superficial tissues.

Norma Occipitalis.—In this Norma the crania have the shape of a pentagon, varying in the proportion which the breadth bears to the height, in the development of the parietal eminences, in the flatness or sharpness of the vertex. The shape possessed by No. 8 and No. 18 was frequently observed, the line from the parietal eminence to the mastoid process being practically vertical.

So gradual is the transition from type to type that it is impossible to assign with confidence the vast majority of the skulls to any one of the five types, which are only of value in that they show the lines along which variation tends to occur. Similarly the variations themselves vary so much in degree that it is impossible to give correctly the proportion of skulls in which any given variation may be said to be present.

It may, however, be stated that the forehead is more frequently inclined than vertical, the supraciliary eminences are as a rule slightly developed; in only one

instance could the upper rim of the orbit be described as thickened, a condition frequently seen in the skulls from the Bronze Age barrows. The post-parietal flattening is so frequently present that it forms a feature characteristic of these skulls, but, as before stated, it may be to some extent at least attributable to the fact that the skulls are long. The form of the occiput again, for probably the same reason, is frequently pointed "come un becco corto di uccello."[a]

Of other irregularities in the cranial contour the backward projection of the superior occipital squame is never sufficiently pronounced to fully deserve the title of "capsuläres Hinterhaupt." No instance of a sagittal ridge was observed, but a shallow longitudinal depression gradually deepening from the bregma to the obelion, at the bottom of which lay the sagittal suture, was noticeable in two skulls, viz. Nos. 462 and 463 of the Oxford series. A distinct post-coronal groove was present in three or four cases, a pre-coronal one being evident in No. 560E of the Royal College of Surgeons' series. No marked asymmetry was noted. The skulls were on the whole fragile, accounting for the fragmentary state in which they are not infrequently found. There were, however, exceptions, the one denominated No. 560A being a good example of a heavy skull of robust type.

A better idea of the skulls can be obtained from a study of the accompanying illustrations than from any mere verbal description. They show examples of the four most common types and exhibit the range of variation. The fifth type is rarely encountered; it is characterised particularly by an almost horizontal inferior occipital squame and an equally vertical superior occipital squame, which together with a vertical forehead produce a cranium of a cubical form.[b]

Wormian bones were present in almost half the cases; they were in the vast majority of instances found in the lambdoid suture, occasionally they extended into

[a] Sergi, *Nuove Osservazioni sulle forme del cranio umano.*

[b] There are two skulls from Arras in the Museum of the University of Oxford. Their measurements are as follows:

	246	247
Sex	♂	♂
Glab. occ. length	184	183
Max. breadth	134	?
Cephalic index	73	?

They bear a striking resemblance in general shape to those from the Danes Graves.

the sagittal and parieto-mastoid sutures. In one instance, obviously due to the fusion of an epipteric bone with the squamous portion of the temporal bone, a fronto-squamous suture resulted.

Metopism was observed in five skulls.

As regards the teeth, they were on the whole in good condition and regularly disposed. A very unusual anomaly was present in "Body A," York, viz. a small accessory upper molar lying behind the wisdom tooth.

Irregularities in the eruption of the teeth were as follows: in No. 530 the left upper canine was very oblique and erupted through the socket for the lateral incisor; in No. 560C the left upper canine had not erupted but presented through the palate; in No. 560H the left upper canine had actually erupted through the palate. The mandible of 560X was practically edentulous, and in that of 560M there only remained the canine, lateral incisor, and first bicuspid on the left side and the first molar on the right side; the edentulous state was not due to the teeth having dropped out after death, as the alveoli were absorbed.

As regards the measurements of the crania, I only propose to give those of the maximum length, the maximum breadth, and, when possible, the minimum frontal breadth. The numbers denominating the skulls are those by which they are known in the different catalogues.

	DRIFFIELD. (Excavated 1902.)			YORK. (Mound 13.)	
	1.	2.	3.	Body A.	Body B.
Sex	♂	♂	♂	♂	♂
Glab. occ. length	190	189	186	184	190
Max. breadth	132	141	142	145 ?	139
Cephalic index	69·5	74·6	76·35	79 ?	73

	CAMBRIDGE.			
	526.	527.	528.	530.
Sex	♂	♂	♂	♂
Glab. occ. length	188 ?	183	179	186
Max. breadth	142 ?	137	130	139
Cephalic index	75·5 ?	75	73	75
Min. front. width	97	100	87	100

OXFORD.

	459.	460.	461.	462.	463.	464.	465.	466.	467.	468.
Sex	♂	♂ [a]	♂	♀	♂	Child	♂	♂	♂	♂
Glab. occ. length	191			179	176	162	183	184	176	198
Max. breadth	130			133	142	123	127	132 ?	133	140
Cephalic index	68			74	80	76	70	72 ?	75·5	70
Min. front. width	96			100						

ROYAL COLLEGE OF SURGEONS.

560

	A	B	C	D	E	F	G	H	I	J
	♂	♀	♂	♀	♂	♀	♀	♂	♀	♂
Glab. occ. length	187	176	183	175	189	181 ?	183 ?	189	183	187
Max. breadth	140	133	141	141	141	128 ?	138 ?	132	131	132
Cephalic index	75	75·5	77	80	74·5	70 ?	75·4	70	71·5	70
Min. front. width	105	94	100	97	98	93	96	101		

	K	L	M	N	O	P	Q	R	S	T
	♂	♂	♀					♂	♂	
Glab. occ. length	188	189	175					192		
Max. breadth	134	124	123					137		
Cephalic index	71·5	65·5	70					71·5		
Min. front. width										

[a] Certain skulls are merely recorded, their fragmentary state precluding all measurement.

	U	V	W	X	Y	Z	Z *a*	Z *b*	Z *c*	Z *d*	Z *e*
				♂		♂		♂		♂	♂
Glab. occ. length . .				186 ?		185		182		183	180
Max. breadth . . .				115		124		132			117
Cephalic index . .				62 ?		67		72·5			65
Min. front. width . .											

These measurements, with the cephalic indices calculated from them, show that twenty-two of the skulls are dolichocephalic, and thirteen are mesaticephalic; those previously published proved thirteen to be dolichocephalic, eight mesaticephalic, and one to have an index of 81 ?. Of all the fifty-seven skulls whose indices have been estimated, no less than thirty have an index of 72, 77, or an intermediate figure. The lowest reliable index computed was 65·5, the highest was 80.

In addition to the skulls, a number of long bones from these barrows have been preserved. They are in the Mortimer Museum, Driffield, and in the Museum of the Royal College of Surgeons. They present us with nothing noteworthy, but they enable us to form some idea of the stature and build of the people buried in these graves.

Mr. Mortimer published in 1897[a] a list of measurements of nineteen femora; of these seventeen belonged to adults. These measurements, which were originally in inches, I have changed into centimetres, and from them estimated the stature according to the formulæ of Karl Pearson.[b]

Further, I have myself measured the femora in the Museum of the Royal College of Surgeons and estimated the probable stature.

The results are as follows:

[a] *Annual Report of the Yorkshire Philosophical Society.*

[b] Mathematical Contributions to the Theory of Evolution. V. On the Reconstruction of the Stature of Prehistoric Races.—*Philosophical Transactions of the Royal Society* 1898.

DRIFFIELD.

Sex.	Femoral Length.		Stature.
	Inches.	Centimetres.	
♂	17½	48·6	172·674
?	17	47·2	170·042
♀	16	44·4	159·202
♂	17½	48·6	172·674
♂ ?	17	47·2	170·042
♂	16	44·4	164·778
♂	18½	51·4	177·938
♀ ?	16¾	46·5	163·386
♀	18	50	170·094
♀	17¼	48	166·204
♂	18¼	50·7	176·622
♂	17½	48·6	172·674
♀	17	47·2	164·648
♀	17½	48·6	167·371
♂	17½	48·6	172·674
♀ ?	18½	51·4	172·817
♀	16	44·4	159·202

The stature of the males is here seen to lie between 165 and 178 centimetres [5 feet 5 inches and 5 feet 10 inches], that of the females between 159 and 172 centimetres [5 feet 2½ inches and 5 feet 7⅔ inches]. The average stature of the males is 172 centimetres [5 feet 7⅔ inches], that of the females is 165 centimetres [5 feet 5 inches].

ROYAL COLLEGE OF SURGEONS.

560	Sex.	Femoral Length.	Stature in centimetres.
A	♂	46·9	169·478
B	♀	39·5	149·671
C	♂	42	160·266
D	♀	41·1	152·783
E	♂	40·8	158·010
F	♀	39·8	150·255
H	♂	44	164·026
J	♂	45·9	167·598
K	♂	40·1	156·694
L	♂	41·6	159·514
M	♀	44·4	159·202
S	♂	41·5	159·326

Here the stature of the males is seen to lie between 157 and 169 centimetres [5 feet 2 inches and 5 feet $6\frac{1}{2}$ inches], that of the females between 150 and 159 centimetres [4 feet 11 inches and 5 feet $2\frac{1}{2}$ inches]. The average stature of the males is 162 centimetres [5 feet $3\frac{3}{5}$ inches], that of the females 153 centimetres [5 feet].

There is thus seen to be a difference in average height of no less than 10 centimetres or 4 inches between the statures estimated from the femora in Driffield and from those in the Royal College of Surgeons. The discrepancy is no doubt due to the great variation in height which is found in races and the small number, twenty-nine in all, of femora measured. With this conflicting evidence it is impossible to attach much weight to stature in arriving at any conclusions as to who these people were. Taking Mr. Mortimer's figures, which are the higher, and trusting that the employment of Professor Karl Pearson's formulæ will give accurate results, I find the stature to be 172 centimetres, whereas the average stature in the East Riding to-day is 175 centimetres.[a] The difference is

[a] Ripley, *Races of Europe.*

little, but it must be remembered that the range in average stature throughout the British Isles is only 168 to 178 centimetres. Perhaps, paying attention also to the measurements of the femora in the College of Surgeons, we may safely conclude that the people of the Danes Graves were of a low to medium stature. As to their general size, from the slender nature of their skeletons I think we may regard them as of slight physique, although there is evidence for the presence of individuals of a more robust type.

Having determined so much, and further that they were dolicho- or mesaticephalic with long oval faces, we have next to consider who they were and whence they came.

The first question to which one naturally addresses oneself is, Are they the descendants of the Neolithic and Bronze Age populations, or are they later immigrants from the Continent? Although certainties are far beyond our grasp, and we are reduced to the balancing of probabilities, there is little doubt that the latter view is the correct one. The long-headed Neolithic people, probably inhabiting originally more the western than the eastern half of our country, could scarcely fail to be driven still more westward by the powerful bands which found our shores towards the close of the Neolithic Age or the dawn of that of Bronze. No county in all probability suffered a more complete alteration of its population than did Yorkshire. No county gives better evidence of the change.

Reconstituting the Bronze Age population of East Yorkshire from the remains[a] in the barrows of that period, we find a very mixed population, so far as skull shape is concerned, in undisputed possession of the country. Examples of the most advanced dolichocephaly and brachycephaly are readily obtained. Further, the skulls, even the long ones, are heavy, with powerful jaws and strongly developed ridges for muscular attachment. They form a most striking contrast to those from the Danes Graves.

Although I am far from sharing the view that skull shape can be regarded as inflexibly persistent, the difference found in the populations of the two periods is so great as to render it in the very highest degree improbable that one can be directly descendent from the other.

Having given adherence to the view that these Early Iron Age settlers were immigrants into the East Riding, we have next to consider whence they came. We know that during this period successive waves of population

[a] Wright, "Skulls from Round Barrows of East Yorkshire," *Journal of Anatomy and Physiology*, 1903, 1905.

entered our country along its eastern border, that the trend of movement was westward. This makes it more probable that they came from the Continent than that they developed their type in a more western region of our country.

Assuming therefore that they came from the Continent, the next question calling for answer is, from which part did they come? Did they enter Yorkshire and England at the same time, or did they make their way into Yorkshire between the marshes of East Anglia and the forests of the Midlands? It is impossible to say, but their nearness to the coast perhaps favours the former view.

As to the precise country from which they sailed little can be said. Gallia Celtica was probably already inhabited by a brachycephalic population, and may be hence regarded as the southern limit. Northward there is no limit, although the low stature does not suggest a far northern origin.

The anthropological evidence accords best with the view that the people of the Danes Graves came from somewhere in the southern half of the region between the Seine and the Baltic.

More one cannot say since little is known of the physical anthropology of Western Europe in any prehistoric period, and no contemporary series of skulls are forthcoming with which to compare that from these graves.

Whether they were fair or dark we have no evidence to determine.